

January 1957

RAILWAY

TRACK *and* STRUCTURES

A Simmons-Boardman Publication

This Issue:

Machine Buying
Way Up in 1956

Getting at Roots
Weed Problem

Buils Mechanized
e-Renewal Gang

a "On-the-Job"
Safety Meeting

Contents—
Page 25

GRIPPING POWER!



The Improved Fair has gripping power sufficient to withstand all stresses due to creepage. This vise-like grip makes possible its effectiveness at all times.



THE P.&M.CO.

CHICAGO • NEW YORK • DENVER • ST. LOUIS • BOSTON • ST. PAUL • WASHINGTON • SAN FRANCISCO • MEXICO CITY

KERSHAW... *First in the Field!*



First ...with the **JACK-ALL**

A combination hydraulic jack and tamper, the Kershaw Jack-All is equipped with hydraulic jacks and hydraulically-operated tamping feet which tamp the ballast under the tie ends.

The Kershaw Jack-All may be used in place of hand jacks in surfacing operations, eliminating practically all hand jacking necessary to surface track . . . May be used in timbering to raise and catch off track, allowing new ties to be inserted with a minimum of effort . . . Self-propelled . . . One-man operated . . . Equipped with a new sighting mechanism, spotboard assembly and improved track-leveling device for precision in track surfacing operations.

*Now ...more than ever ...
Recognize This Symbol
of Leadership ...*

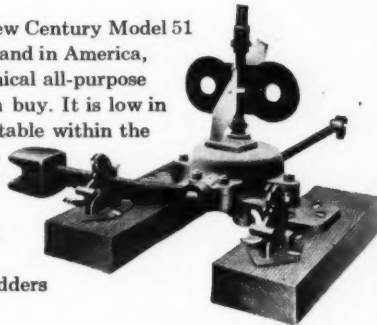


The Complete Line of Kershaw Track Maintenance Equipment

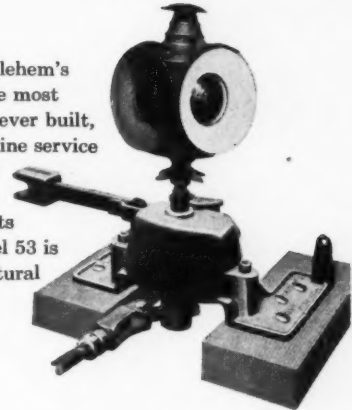
Ballast Regulator, Scarifier and Plow and Attachments • Single Wheel-Type Kribber • Mocar Crane • Cribber-Adzer • Jack-All • Track Crane • Tie Bed Cleaner • Track Broom • Track Skeletonizer and Undercutter • Ballast Cleaner and Distributor • Spot Tamper • Two-Wheel Kribber • Chemical Spreader Car • Deadhead Detector • Rail Re-Layer.

What do you look for in a stand?

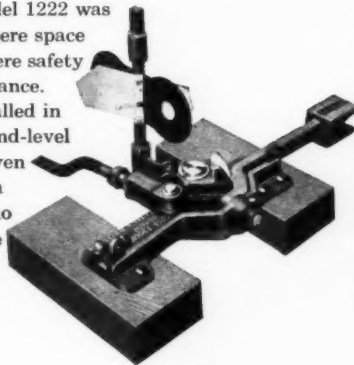
ECONOMY? The New Century Model 51 is the most popular stand in America, and the most economical all-purpose switch stand you can buy. It is low in first cost, fully adjustable within the stand itself, and permits use of the most economical switch fittings. Can be used anywhere: main or branch lines, yard ladders or sidings.



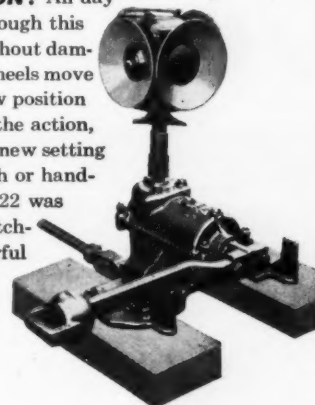
RUGGEDNESS? Bethlehem's Model 53 is one of the most rugged switch stands ever built, unsurpassed in main-line service where traffic is heavy and fast. From its tough broad base to its oversize spindle Model 53 is big and brawny, a natural for the shocks and strain of high-speed turnout duty.



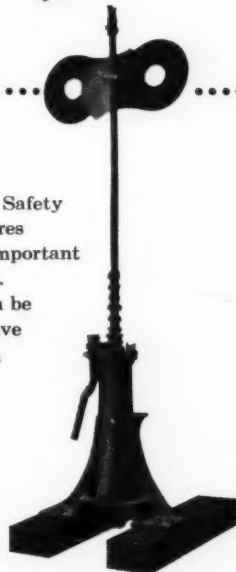
COMPACTNESS? Model 1222 was designed to be used where space is at a premium, or where safety calls for plenty of clearance. This stand can be installed in a flush-top box in ground-level station platforms, or even between the points of a switch where there is no clearance on either side of the track! Though small, it is strong, tough, and easy to operate.



AUTOMATIC OPERATION? All day long you can run cars through this tough little Model 22, without damage to car or stand. The wheels move the points toward the new position and the stand completes the action, holding the points in the new setting until the next run-through or hand-throw movement. Model 22 was expressly designed for switching service, and the powerful spring mechanism can really take it. Recommended for yards or sidings.



SAFETY? Bethlehem Main Line Safety Switch Stands have safety features not found in other models, most important of which is the waist-high throw. Any Main Line Safety stand can be made automatic, spring or positive by the simple changing of a cam in the mechanism. Can be used in any kind of track service.



From this group of stands you can select the right one for any location. A Bethlehem engineer will be glad to describe any of these stands for you in complete detail.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

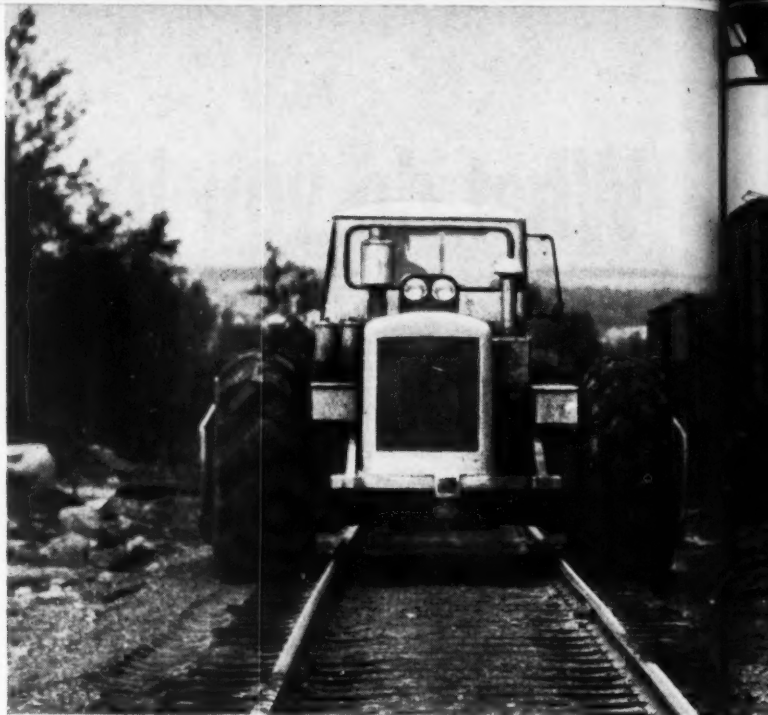


Published monthly by Simmons-Boardman Publishing Corporation, Emmett Street, Bristol, Connecticut, with editorial and executive offices at 79 West Monroe Street, Chicago 3, Illinois; 30 Church Street, New York 7, New York. Subscription prices: to railroad employees only in the United States and Possessions, and Canada, one year \$2.00. Second class mail privileges authorized at Bristol, Conn. Volume 53, No. 1.

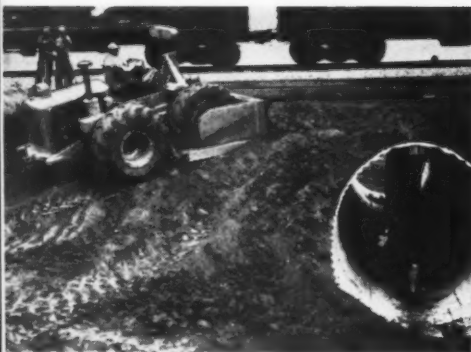


Tournatractor crosses tracks without blocking, does no damage to rails or switches. Big, low-pressure tires deflect to move load evenly over obstructions . . . do not chamfer ties, trip or damage block signals.

Tournatractor travels between jobs along right-of-way, cross-country, or over paved highway at speeds to 17 mph. A phone call is all it takes to get this "one-man work crew" in motion.



RUNS to maintenance jobs



BACKFILLS CULVERTS

This is typical of the jobs that Tournatractor can handle without the help of other equipment. When mainliner barrels through, 208 hp tractor-on-rubber pulls to one side . . . minutes later is working again. No delaying of traffic . . . no moving of work train onto siding . . . no idle track gang.



STOCKPILES COAL

With dozer blade or scraper, 17 mph Tournatractor stockpiles coal, cinders, or ballast. Low-pressure tires compact and seal coal-pile against fire . . . do not grind coal into fines like tracks. Its 4 tires do a better job of compaction than crawler's 550 track parts . . . yet have less maintenance.



CLEARs LANDSLIDES

A minute after emergency occurs, Tournatractor is on the way. Dozing in 2nd gear (3.3 mph) and backing up at 7 mph, Tournatractor makes short work of a rock slide like this. As a result, trains can resume schedules faster . . . tracks are not blocked by work train. No planking is necessary.



PUSH-LOADS SCRAPERS

Teamed with Tournapulls on 800,000-yd. rail spur line in Montana, this Tournatractor pushed 42 loads of sand an hour. Load distance for 9 1/2 cu. yds. averaged 75' . . . load time, 30 seconds. Torque converter enables Tournatractor to match scraper speed for fast efficient work.



PULLS HEAVY EQUIPMENT

Skidding heavy compressor is one of many pulling jobs your Tournatractor can handle. 208 hp diesel and 4-wheel drive give plenty of drawbar pull to handle heavy loads. Unit pulls scrapers, tows Rooters, pulls trailers, skids generator plants, poles,



SPOTS RAILROAD CARS

Powerful Tournatractor spots cars in emergencies . . . keeps sidings clear for incoming freight. Instant-shift gear selection keeps unit pushing without losing vital momentum. Unit straddles rails with room to spare. Machine available with front-end standard

s anywhere in your division



CLEANS UP YARD

Big blade, 208 hp "push", instant gear change, plus 7 mph reverse, enable tractor to outwork any big crawler. Unit generates own electricity for raising and lowering blade, and operating towed equipment. 3-yd. Angledozer can be mounted in place of 2½-yd. Bulldozer.



PLOWS SNOW

Tournatractor V-type snow plow clears path 12'3" wide. Vertical center divider plate cuts frozen drifts, eliminates plowing snow back on road when widening. Big low-pressure tires and adjustable runner-shoe protect plowed surface. Electric-controlled

Do your scattered earthmoving jobs faster and cheaper with one man and a rubber-tired Tournatractor!

No need to get a work train ready. No time-consuming loading and unloading of equipment. No waiting for dispatchers and a clear track. Operator just hops on and goes — over tracks, pavement, bridges, along right-of-way, or highway. Averages a mile every 3 or 4 minutes.

Once on a job, Tournatractor gets right to work. When dozing, it delivers 2½ yds. every few seconds. It also pulls equipment speedily, uproots trees, brush, cuts slopes, etc. Because of its greater speeds, it will outwork the biggest crawler-tractor on almost every assignment, 2 or 3 to 1. It has 4-wheel drive, instant gear change with constant-mesh transmission, torque converter, powerful 4-wheel disc-type air brakes, and fast finger-tip electric control. It's easy to operate, handy to maneuver, safe and dependable, needs little maintenance. It gets work done fast without delays to rail traffic. And it goes from job to job in a hurry!

With high-speed, free-traveling Tournatractor, you eliminate a lot of trouble because it gets around to make repairs before damage is serious. Tournatractor improves drainage, replaces eroded fills, repairs shoulders, spreads ballast in low spots, keeps all sorts of right-of-way "housekeeping" up-to-date. One man with Tournatractor can put many miles of right-of-way into tip-top condition for less than repair cost of one wash-out. Let us show you what 17 mph Tournatractor can mean to you in better maintenance for less money!

Tournapull, Angledozer, Rooter, Tournatractor—Trademark Reg. U.S. Pat. Off. T-643-RR-w

LeTourneau - WESTINGHOUSE Company

Peoria



Illinois

TRACK *and* STRUCTURES

Subject:

More Experience for Young Men

**Dear
Readers:**

Many of you who have been working on railroads for many years will remember the days when a young engineer would usually work for a number of roads before settling down on the one of his choice. Those were the days of expansion when new lines were being built and new opportunities for young men were being created almost every day. It was not unusual for a young engineer to work on a half dozen or more roads before he had satisfied the tendency to roam.

There was much to say in favor of the practice. It had advantages to the individual because, while he was changing from one road to another, he was accumulating experience under a variety of conditions. Such experience was almost certain to be helpful in winning promotions when he finally decided to settle down.

The practice also had advantages for the railroads. Young men coming to them from other lines were bringing with them a knowledge of practices on these other roads. This constant infusion of fresh ideas and experience was bound to be reflected in the introduction of new and improved practices. A railroad that was fortunate to have a continuing influx of young but experienced men was in little danger of falling behind in adopting technological improvements.

This situation no longer exists. There is still, of course, some shifting of young men from road to road, but at a much slower rate than formerly. The reason is obvious. Since the railroads are no longer in the growth stage they have few new supervisory jobs to offer, and those vacancies that do occur are usually filled from their own ranks.

Young technically trained men are, of course, still entering the railroad field. Many of them stay only a short time and when they leave they generally go into another industry. Only rarely do they shift to another railroad. If they wish to adopt railroading as a career they might as well stay with the first road because the opportunities for advancement are doubtless just as good there as elsewhere.

Thus young engineers tend to "grow up" on the same road. They become indoctrinated in the practices of the one company. In other words, the railroads, to a large degree, no longer enjoy the benefits that they formerly obtained by hiring experienced young men from other lines.

Other factors are helping to make up for this lost advantage. Meetings and conventions of railway groups offer an effective medium for the dissemination of knowledge about improved methods. Independent trade publications, such as *RT&S*, are regarded as standard sources of information. Also, there is much visiting back and forth between railroads, much of it in connection with demonstrations staged by supply companies.

In view of all the means that are available for keeping up to date, it would seem to be practically impossible for individual railroads to fall behind the procession. But it happens. Occasionally a situation comes to light where a railroad has almost completely lost contact with the trend of new developments.

The thought occurs that such situations could be minimized if a system could be worked out for deliberately rotating promising young men on a number of railroads so that they could "soak" up a variety of experience. This idea may not be easy to work out, but it's worth considering. MHD



DIESELS Demand Rail Lubricators... ...True Economy Demands RACOR!

Where should you install rail lubricators?

Experience with diesel motive power shows that high rails of curves wear out faster than with steam—so much faster that savings can be realized by lubricating the outer rails of all curves of two degrees or more. Some authorities even recommend rail lubricators for one-degree curves in high-speed territory.

The effectiveness of rail lubrication in reducing wear on wheels and rails, and in lowering curve resistance, is well established. Well recognized, too, is the superiority of the Racor lubricator in the most severe service.

For the Racor lubricator is simple in design, ample in capacity, and sturdy in construction. So sturdy, in fact, that it can be installed in the curve spiral, where each wheel hugs the high rail and picks up maximum grease around its entire circumference. Its heavy, high-carbon steel delivery plate distributes a long, thin line of grease at exactly the right point to avoid flow onto the top of the rail. Delivery of grease from the simple gear type pumps can be easily controlled by adjusting the height of the plunger.

Why not ask your Racor representative for an analysis of the curves in your territory where rail lubrication might be desirable, or where a restudy of existing lubrication would



The improved Model 4000-A Racor rail lubricator is designed and built for the longest service with the least maintenance. Its large reservoir holds 250 lbs. of grease.



RAILROAD PRODUCTS DIVISION

230 PARK AVENUE • NEW YORK 17, N. Y.

IN CANADA: DOMINION BRAKE SHOE CO., LTD.

NOW YOU CAN PLOW ON DOUBLE TRACK

like
the

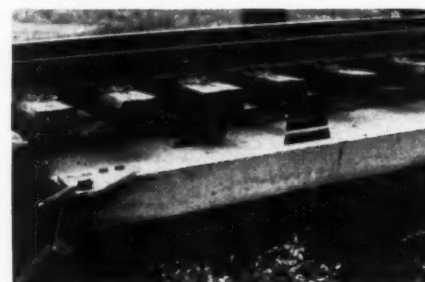


Front end view of Double Track Plow. Note that plow blades move in one direction only.

Now the MANNIX PLOW has been still further developed to plow on double track. 3,159 feet of track cribbed in less than two hours . . . that's just one example of the way it saves money for the Chicago and North Western! Today, send for details of the MANNIX Plow-and-Sled method of track maintenance. Ask about the contract plan available for the use of this patented equipment.



Plow in position under the track. The jacks holding the track will be removed.

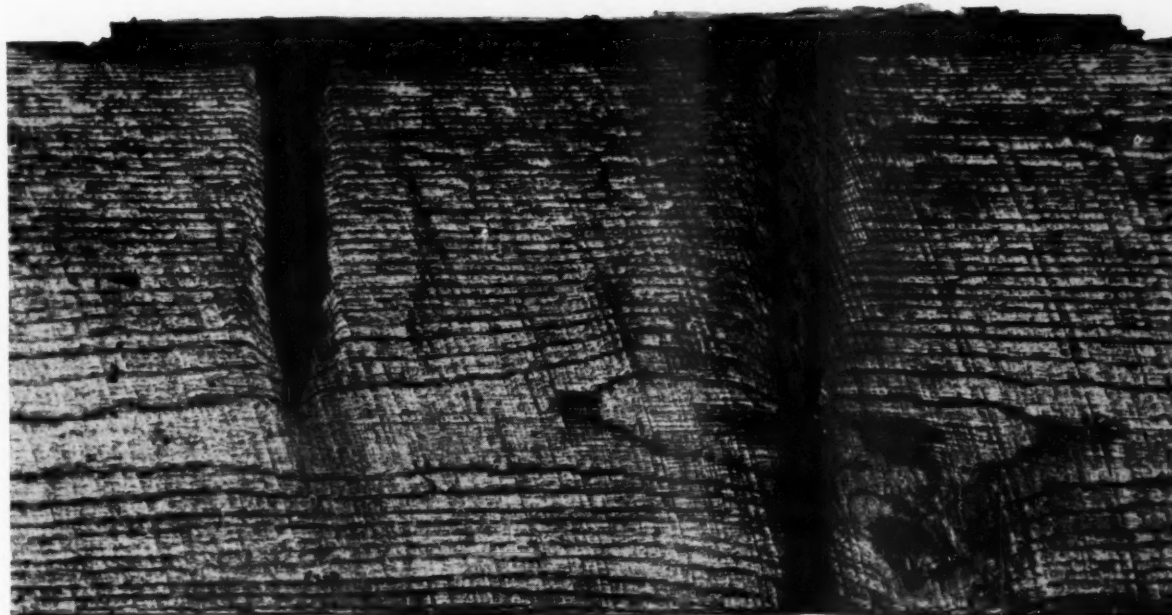


Double Track Plow in operation. All the foul ballast is carried to the outside shoulder by the "one way" blades.



4020 Minnetonka Boulevard, Minneapolis 16, Minnesota
Phone: WALnut 7-9411

Plan for the future —



Unretouched photograph of cross section of tie showing underplate and spike-hole area protected for 10 years by Bird Self-Sealing Tie Pad.

SLASH YOUR TIE COSTS WITH BIRD SELF-SEALING TIE PADS

Here is PROOF of the effectiveness and durability of the seal of the Bird Self-Sealing Tie Pad to the tie.

This Bird Self-Sealing Tie Pad was installed on a 1944 cross tie as part of a new rail laying program in 1946. The tie was removed from track in July, 1956 for exhibition purposes.

Note the protection to the underplate and spike hole wood which has been provided over a 10-year period by the Bird Self-Sealing Tie Pad. There is no trace of the well-known effects of moisture or

abrasion in either of these vulnerable underplate areas. Destructive moisture and abrasive materials could not penetrate the seal.

The Bird Self-Sealing Tie Pad is specially designed to provide an effective and durable seal with the tie. The pad also protects this seal and acts as a buffer between the tie plate and the tie to eliminate mechanical wear. That's why you can slash your tie costs at least 50% through the use of Bird Self-Sealing Tie Pads. For further information, write Bird Tie Pads, Dept. HTS-1, East Walpole, Mass.

BIRD SELF-SEALING TIE PADS ARE RECOMMENDED FOR:

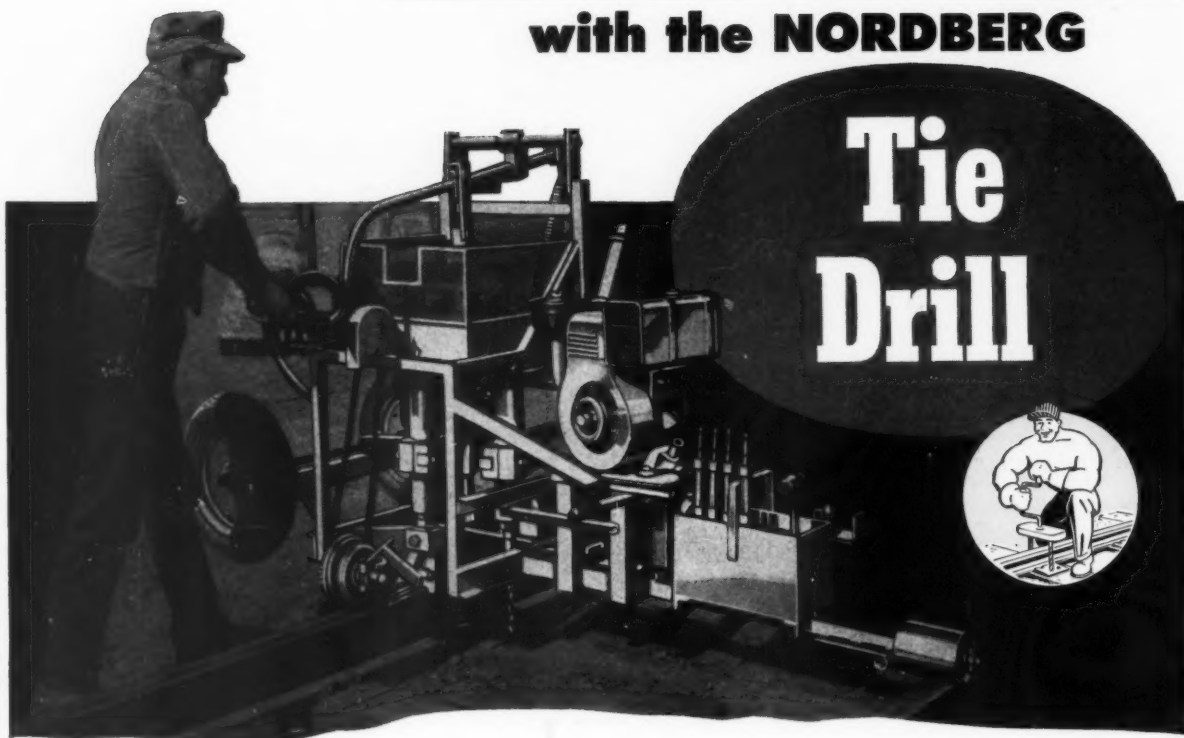
Bridge Decks • Curves • Switch Timbers
Highway Grade Crossings and Other
Paved Areas • Crossing Frogs
Insulated Joints • With Smaller Tie Plates
Pile Cutoffs • Through Station Platforms
Out-of-Face Installations in Rail-Laying
Programs • All other locations where
tie life is short or replacement costs are high.

Buy the Best...



Buy BIRD

**save time and money
DRILL TIES BEFORE SPIKING
with the NORDBERG**



Advantages:

- Field drilling costs can be cut about 75 %
- Speeds rail laying . . . drills two holes at once, in less than 3 seconds per hole
- Easily operated by one man
- Drills holes for rail holding or plate fastening spikes
- Always drills holes at right angles to tie
- Spikes have greater holding power . . . tie life is considerably extended



NORDBERG
"Mechanical Muscles"

© 1955, Nordberg Mfg. Co.

THE fully proved Nordberg Tie Drill is the maintenance machine you need for cutting tie drilling costs . . . and for increasing the life of your ties.

This accurate machine is the fastest tie drill on the market. It is operated by one man, who can spot and drill 48 holes in 24 ties of one rail length in just 2½ minutes . . . which is less than 3 seconds per drilled hole.

You can't afford to overlook savings like this! For further details about the Nordberg Tie Drill, write for Bulletin 199.

ADZING MACHINE • BALLAST ROUTER • CRIBEX • BALLASTEX • SCREENEX • HYDRAULIC and MECHANICAL SPIKE PULLERS • SPIKE HAMMER • TIE DRILL • POWER JACK • POWER WRENCH • RAIL DRILL • RAIL GRINDERS • TRACK SHIFTER • DSL • YARD CLEANER • TRAKLINER • GANG TAMPER • DUN-RITE® GAGING MACHINE • GANDY-TIE PULLER and INSERTER

NORDBERG MFG. CO., Milwaukee, Wis.

R755





Here's the new, safe look at Three-Mile Creek. Armco Corrugated Metal Structures provide all the advantages of laying track on solid ground.

FIRE HAZARD ELIMINATED

Armco MULTI-PLATE Structures

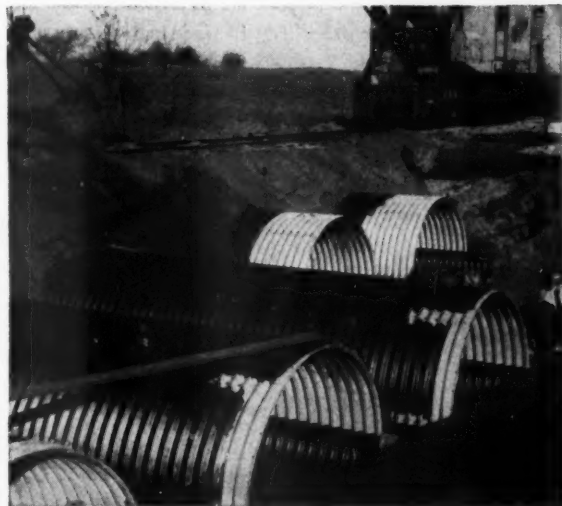
Replace Burned Trestles on C & N W

When ten single-track trestles burned to the ground at Three-Mile Creek near Nelson, Illinois, Chicago and North Western officials were faced with a replacement problem. They wanted a low-cost structure that would *eliminate* fire hazards.

To solve the problem, they decided to install eight lengths of Armco MULTI-PLATE® Pipe-Arch and an earth fill. Pipe-Arch was selected because of the limited head-room conditions and needed waterway area.

Fire-resistance is only one reason why more and more railroads are solving drainage problems with Armco Corrugated Metal Structures. In addition to low cost and years of maintenance-free service, they assure efficient strength under high fills and heavy traffic.

Write us for complete data. There's a size, type, gage and shape for almost any drainage need. Armco Drainage & Metal Products, Inc., 3217 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

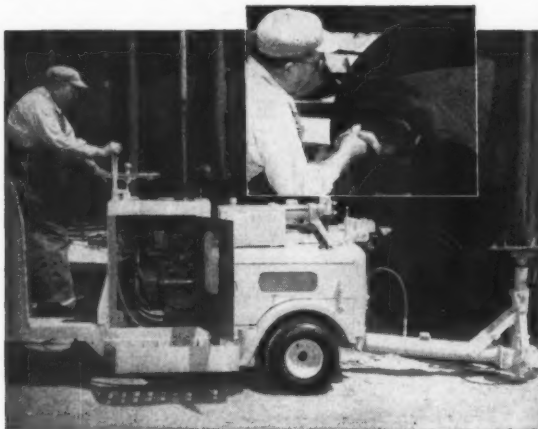


Backfill operations were started as soon as enough Armco MULTI-PLATE was installed to open the first track. Armco Structures hold traffic delays to a minimum.

ARMCO CORRUGATED METAL DRAINAGE STRUCTURES



Wisconsin-Powered Unit Cuts Car Servicing Costs From 50 to 75%



BENICIA, CALIF.—A self-propelled unit known as the Yu-Brasser has been introduced by the Yuba Manufacturing Co., 701 H. St., Benicia, Calif., which, according to the company, more than doubles the number of cars one man can service. The Yu-Brasser combines journal jack, brass trimmer, and car lift, and with it one man removes and trims brasses, opens oil rolls and replaces brasses on the spot in 2 or 3 minutes! With jack extension, operator can lift car for inspection and grease center plates and side bearings in about 9 minutes per car. Maximum ram capacity is 15 tons.

A Wisconsin 2-cylinder, 4-cycle heavy-duty air-cooled engine powers the Yu-Brasser's hydraulic system . . . further proof that in maintenance-of-way equipment, Wisconsin power is specified more than any other engines in the 3 to 36 hp. range! All Wisconsin engines are of HEAVY-DUTY construction with basic HIGH-TORQUE design . . . *lugging power* that keeps the engine going through shock-load intervals to deliver most hp. hours on-the-job! Wisconsin engines feature tapered roller bearings at *both* ends of the crankshaft *plus* a high tension rotary type, *outside* magneto; positive lubrication, and efficient all-weather AIR-COOLING — backed by more than 2000 Authorized Service Stations throughout the world. Write for bulletin S-195 with full information on all models.

Get aboard...

SPECIFY
**WISCONSIN
POWER***

*No. 1 Choice
In Maintenance-Of-
Way Equipment!
1-, 2-, and
4-cylinder models;
3 to 36 hp.

WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
Milwaukee 46, Wisconsin

Something New Has Been Added...



MOSS

PRESSURE TREATED CROSSINGS

*4 Through Bolts Instead of 3
in the Assembled Slab Mean*

- GREATER STABILITY
- LONGER LIFE
- SMOOTHER RIDING

It's the latest development in Moss' continuing search for ways to provide stronger, smoother and more durable railroad grade crossings. And that's not all. Moss through bolts are now provided with lock nuts that can't shake loose, even under continuous heavy traffic.

More reasons why Moss Crossings are your best investment!

VERSATILE:

Pre-framed for single or multiple, tangent or curved track. Adapted to crossing through railroad turnouts. Suitable for crossings at any angle with track.

DURABLE:

Built of tough, pressure-creosoted black gum, highly resistant to shock and abrasion, with interlocking grain that gives extra resistance to wear. Many have given 15 and more years of smooth, trouble-free service.

EASY TO INSTALL:

Timbers are cut and fitted to your specifications. Can be installed by a small track gang with regular tools. Easy to move from one location to another.

**FOR CROSSINGS THAT LAST AND LAST—
INSIST ON MOSS CREOSOTED TIMBER
CROSSINGS**

WRITE TODAY FOR FREE BULLETIN

T. J. MOSS TIE COMPANY

700 SECURITY BUILDING • ST. LOUIS 2, MISSOURI
CROSS TIES • SWITCH TIES • POLES AND POSTS • PILING • CROSSINGS
WOOD PRESERVING PLANTS: E. St. Louis, Ill.—Granville, Wis.—Shreveport, La.—Columbus, Miss.



the improved
GAUTIER RAIL ANCHOR

This year marks the biggest in sales and acceptance in Gautier's history. Its outstanding performance under all track conditions has made it more in demand with track engineers and maintenance-of-way men than ever.

The Gautier is a heavy, one-piece rail anchor made of alloy steel. It is designed so that it can't be overdriven, so that it can be used again and again without losing its holding or gripping power, so that it can be applied with a maul or spike maul.

Next time specify Gautier—the outstanding rail anchor on the market.

MID-WEST FORGING & MANUFACTURING COMPANY

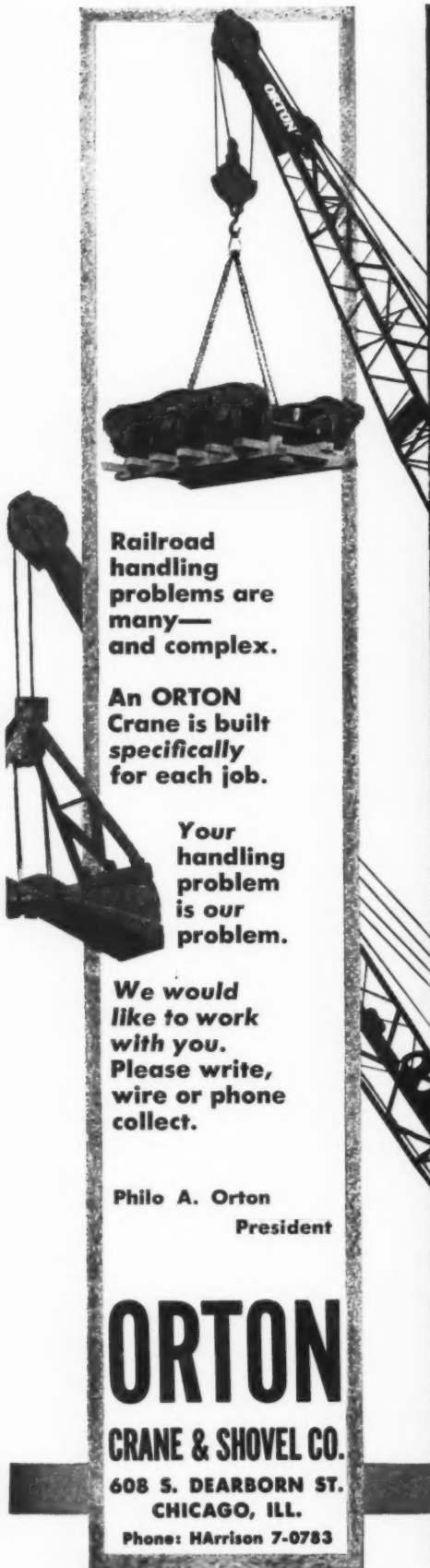
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Railroad handling problems are many—and complex.

An ORTON Crane is built specifically for each job.

Your handling problem is our problem.

We would like to work with you. Please write, wire or phone collect.

Philo A. Orton
President

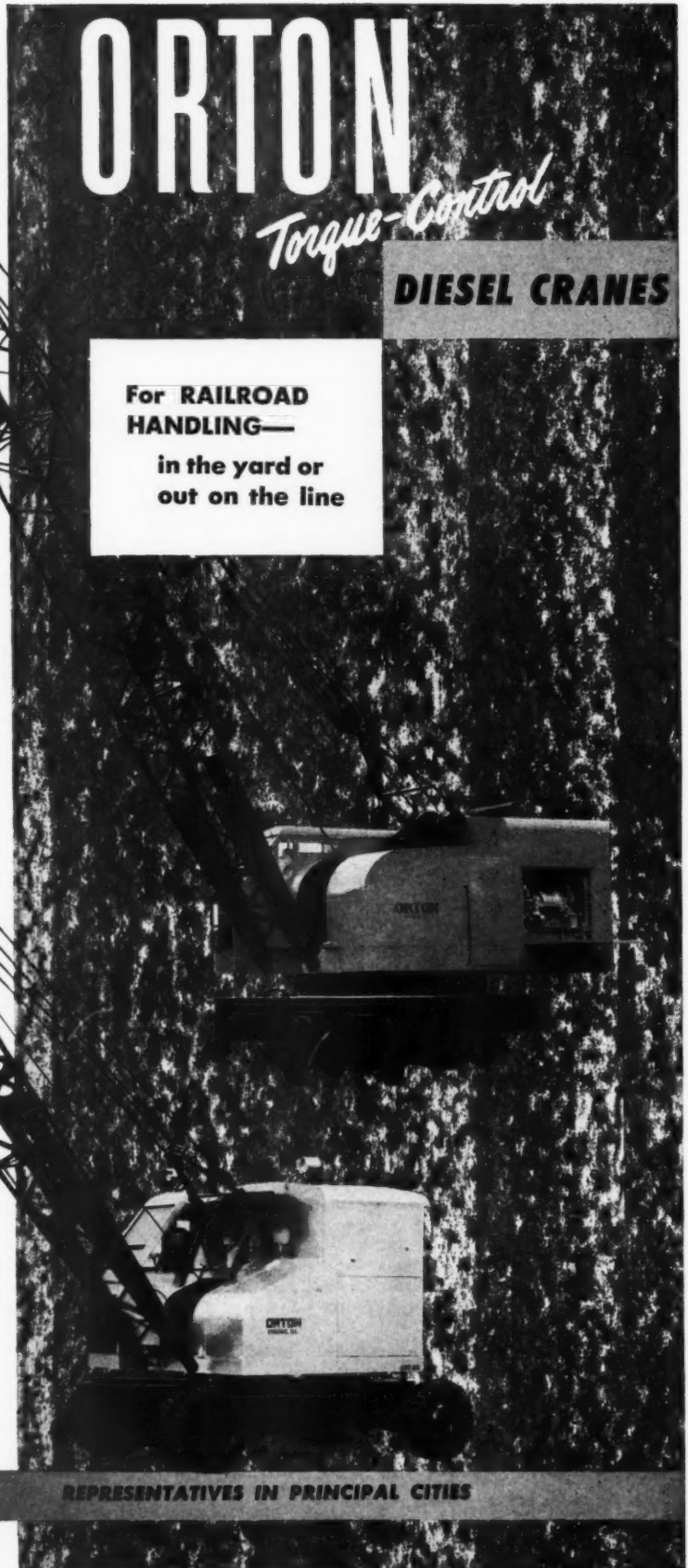
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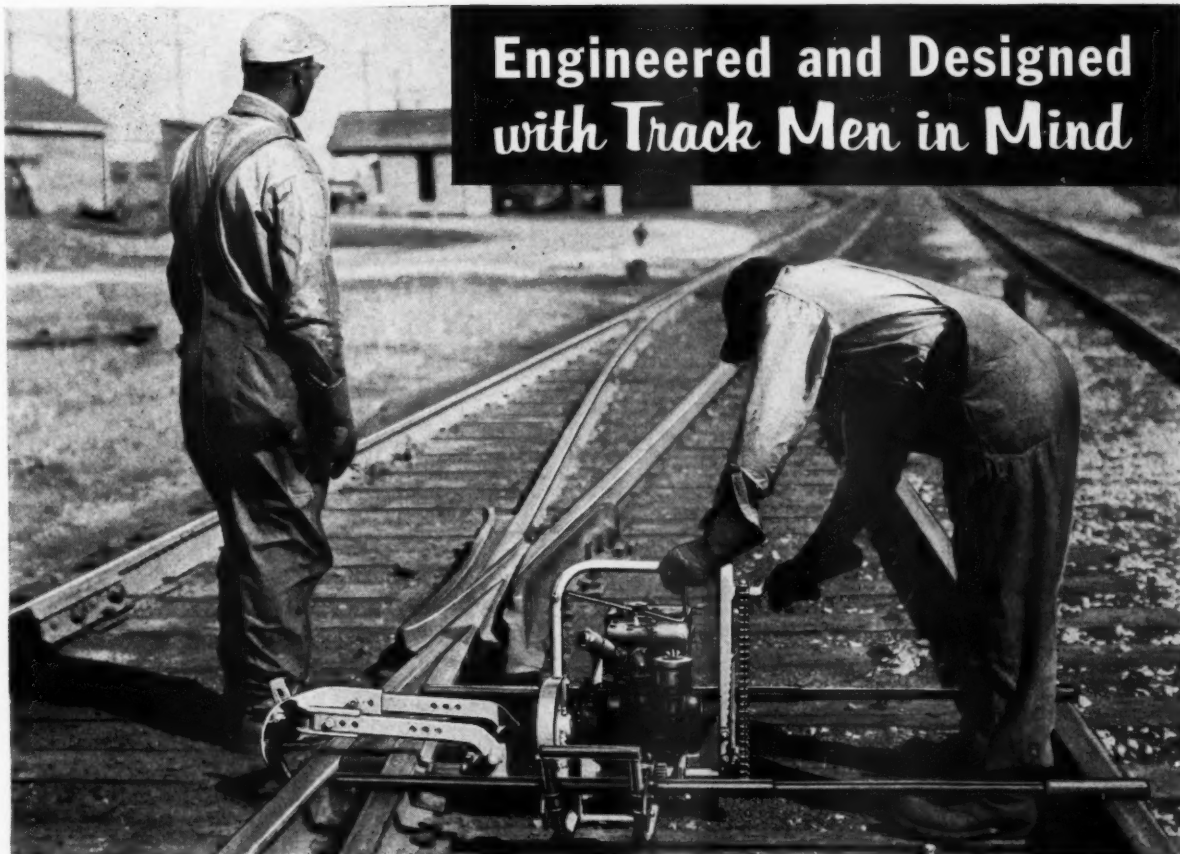
Torque-Control

DIESEL CRANES

For RAILROAD HANDLING—
in the yard or out on the line



REPRESENTATIVES IN PRINCIPAL CITIES



**Engineered and Designed
with Track Men in Mind**

WESTERN FORMERLY BUDA **Power Track Drill**

Here is a vital piece of equipment in keeping track modernization, expansion and maintenance programs in high gear—the Model P power track drill that has ALL the features essential to economical operation.

EASILY SET UP...and ACCURATE.

Can be located from top of rail (with optional telescopic support and locator rods) or positioned on ties and ballast (with long overclutch and adjustable rail guide). No change in set up necessary while working on same size rail.

COMPACT and PORTABLE. Weighs only 130 pounds. Can be started, operated and slid along the rail by one man. Easily carried overland by two men.

DEPENDABLE. Gives all-weather, long-life service. Powered by easy-starting $1\frac{3}{4}$ h.p., 4-cycle Briggs & Stratton air-cooled gas engine. Equipped with Tim-

ken roller thrust bearing. Versatile spindle sleeve handles all flat drills from $\frac{3}{16}$ " to $1\frac{1}{2}$ ".

SAFE. Can be released and removed from track within 10 seconds... no stopping and backing off.

CONTROLLED FEED. Avoids broken and prematurely dulled drills. Sensitive crank-chain mechanism allows operator to vary the thrust accurately according to the hardness of the rail and sharpness of the drill.

FAST. Drills $1\frac{1}{8}$ " hole in 90 lb. rail in 30 seconds... in 155 lb. rail in less than 90 seconds.



HYDUTY-PAULUS MANUAL TRACK DRILL

A track maintainer's tool that every section house should have. Special safety and adjustment features assure precision drilling plus instant emergency detachment.

5803

Write for
Detailed Information



WESTERN

**RAILROAD
SUPPLY
COMPANY**

Maintenance-of-Way Division

2400-2434 South Ashland Ave. • Chicago 8, Illinois
IN CANADA: Melville Machinery Co., Ltd., Montreal 3, Quebec

One of a series of ads featuring new WESTERN products formerly supplied by BUDA



"Chipman weed killers do such a good job, I decided to use some around our estate!"

Chipman chemicals and application service are backed by 45 years of railroad experience. An extensive line of weed, grass and brush killers is available to meet varying conditions. Included are:

Atlacide	Chlorea	Brush Killer
Atlas "A"	Chlorax	Telvar W
Atlas "D"	TCA	Borax

Let us solve *your* weed problems with the *right* chemicals and application service!

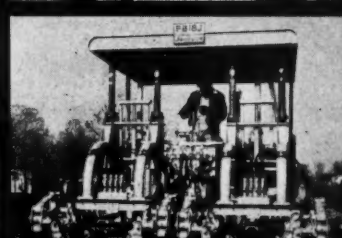
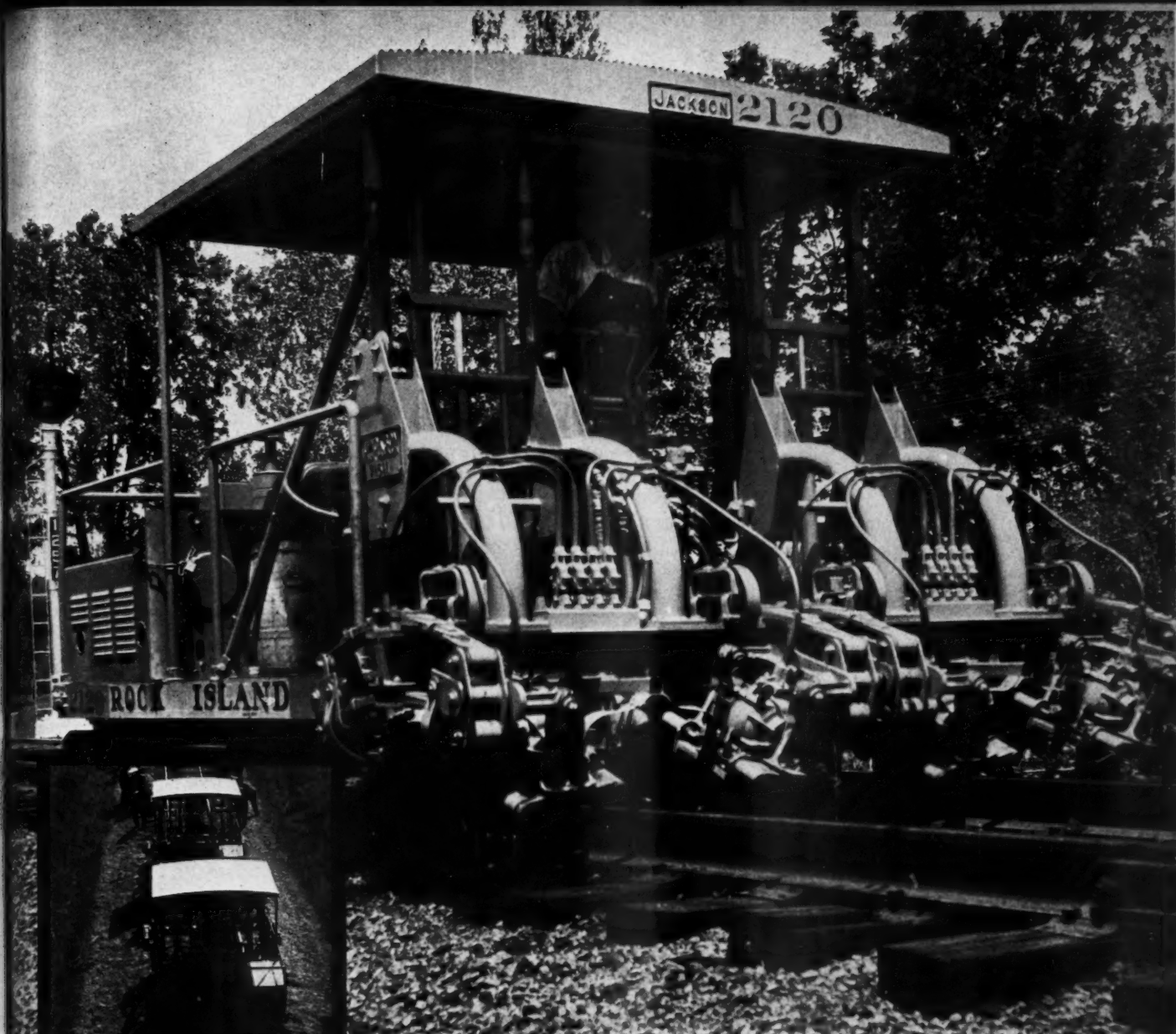
16 Strategically Located Chipman Plants



CHIPMAN

Chemical Company, Inc.
Bound Brook, New Jersey





The JACKSON TRACK MAINTAINER

PROPERTY OF THE
SIMPSON-BOARDMAN
PULLEYING CORP.
CHURCH ST.
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PUTS UP PERFECT TRACK IN A WIDER RANGE OF BALLAST AND CONDITIONS THAN ANY OTHER TAMPING EQUIPMENT!

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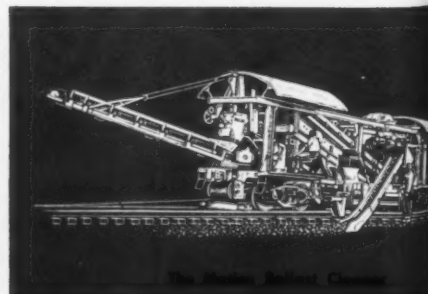
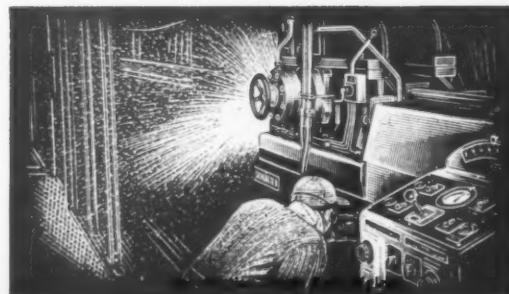
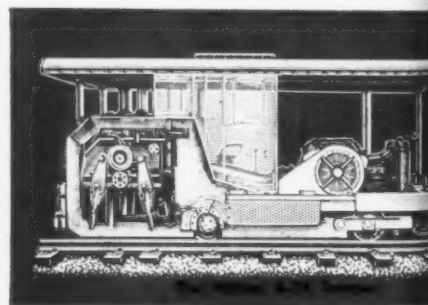
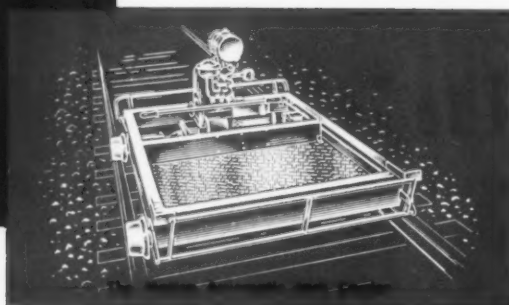


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News Notes

... a resumé of current events throughout the railroad world

RAILWAY

TRACK and STRUCTURES

JANUARY, 1957

"Our backbone railroad system" would not be supplanted by our "great network system of national highways" in "meeting defense emergencies," said Representative Harris, acting chairman of the House Interstate and Foreign Commerce Committee, speaking before the Southeast Institute of Transportation at Atlanta, Ga., recently.

Western railroads have asked the ICC to authorize a 5 per cent increase in first class and coach passenger fares. The fare hike, justified due to higher wage, fuel and material costs, is not to apply to commutation or furlough fares.

An increase of 135 per cent in the cost of laying new rail from 1945 to 1955 was noted recently by the ICC's Bureau of Transport Economics and Statistics. According to the Commission, the cost per ton of new rail laid by Class I roads in 1955 was \$108.21. A total of \$91.1 million was spent for new rail in 1955, compared with \$51.8 million in 1941 and \$108 million in 1953. According to the ICC, new rail laid in replacement in all tracks by Class I roads has ranged from a high of 1,613,548 tons in 1945 to a low of 841,681 tons in 1955.

Railroads placed \$36 million in new construction work in November 1956, according to an estimate released by the Commerce and Labor Departments. This figure compares with \$35 million in November 1955 and \$41 million in October 1956. In the first 11 months of 1955, it was estimated that the railroads placed \$396 million in new construction compared with \$344 million in the same period of 1955—an increase of 15 per cent.

Freight-rate increases of 7 per cent on the eastern railroads and 5 per cent on the western lines have been granted by the Interstate Commerce Commission. The railroads were authorized by the commission to put the new rates into effect five days after filing the necessary papers. It is estimated by the ICC that the increase will cost shippers approximately \$402.6 million a year.

Southeastern railroads also have pending a request for an emergency 7 per cent increase and eastern and western lines have requested a general 15 per cent long-range increase in addition to those recently granted.

Mediation has ended between the railroads and the Brotherhood of Railroad Trainmen. The union has said that it will not further arbitrate its current wage dispute. At the time this issue went to press, it was presumed that the next step would be the appointment of a Presidential Emergency Board.

A plan to stabilize railroad employment and conserve unemployment insurance funds has been announced by the Railroad Retirement Board. Results of inventories of claimants for unemployment benefits would be sent to the RRB's Chicago office, processed, and sent to all major railroads and RRB field offices. Field office managers would then contact local railroads to determine by what method the greatest number of claimants could be employed—not only in railroad service but in other fields as well.

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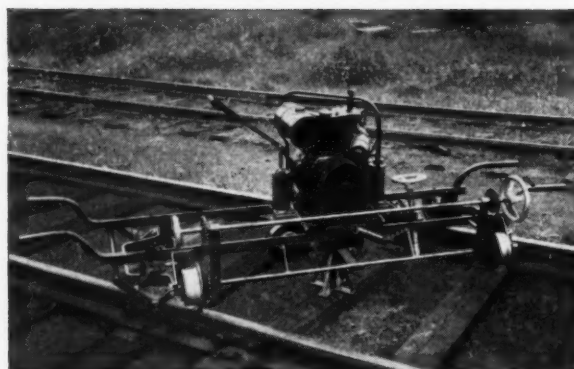
You'd have to make a long list to include all the famous railroads which depend on RTW Grinders to keep rails in perfect condition! The nation's foremost lines have found that where RTW maintenance equipment leads the way, economies naturally follow. Here are just two of the RTW machines that save time and money on America's most modern railroads.



PORTABLE CROSS GRINDER! MODEL P-11-S—This lightweight and versatile grinder was developed especially for the easy removal of overflow metal at rail ends, and cross grinding behind welding crews.

All grinding equipment and the 4 hp air-cooled gasoline engine pivot 360°—one grinding head works both rails. Equipment is mounted on carriage which traverses between rails on ball bearings running on steel guides.

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3½ miles of main line



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And here is important news for railroads. Now you get even greater production from the Caterpillar D9 Tractor. Its Turbocharged engine output has been increased to 320 HP at the flywheel. And it's easy to service major components. Oil clutch or torque con-

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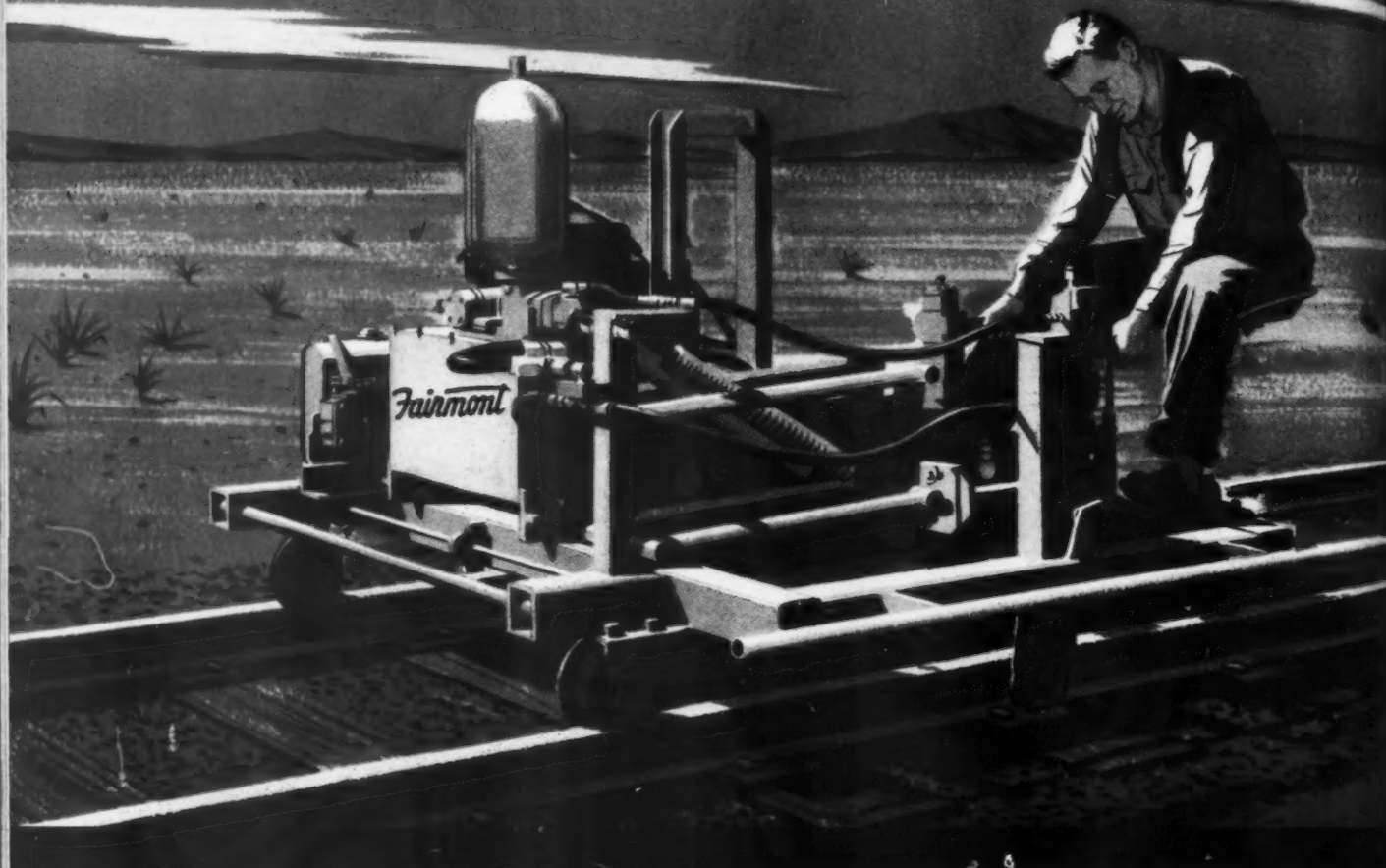
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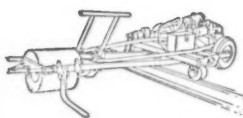
Supplying to railroads the complete line of welding and cutting materials and modern methods furnished for over forty years under this familiar symbol . . .

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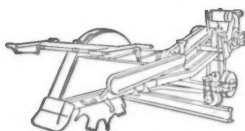


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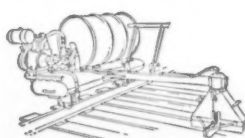
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Published monthly by the
SIMMONS-BOARDMAN
PUBLISHING
CORPORATION

79 West Monroe St., Chicago 3

New York 7,
 30 Church Street

Washington 4, D. C.
 1081 National Press Bldg.

Cleveland 13,
 Terminal Tower

Atlanta 9, Ga.
 22 Eighth Street, N.E.

Portland 5, Ore.
 835 Terminal Sales Bldg.

San Francisco 4,
 244 California Street

Los Angeles 17,
 1151 West Sixth Street

Dallas 19,
 3908 Lemmon Ave.

Foreign Representatives
 Sibley-Field Publishing Company
 Ltd.
 103, Newgate Street
 London E.C. 1, England

Linder Presse Union GMBH
 International Advertising Agency
 (16) Frankfurt a. Main
 Wittelsbacher Allee 60,
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Subscription price to railroad em-
 ployees only in the U.S., U.S. pos-
 sessions and Canada, \$2.00 one year,
 \$3 two years, payable in advance and
 postage free. All other countries, \$8
 one year, \$16 two years. Single
 copies 50¢. Address correspondence
 concerning subscriptions to R. C.
 VanNess, director of circulation, 30
 Church Street, New York 7.

Member of the Associated Business
 Papers (A.B.P.) and of the Audit
 Bureau of Circulations (A.B.C.) and
 is indexed by Engineering Index,
 Inc.

PRINTED IN U.S.A

RAILWAY TRACK and STRUCTURES

RAILWAY

TRACK and STRUCTURES

JANUARY, 1957

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JANUARY, 1957 25

*helps you
cut maintenance
and idle gang
time*



International Harvester Photo

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 - Prevent corrosion attack on bearing metals.



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1957 Looks Good, Too . . .

RAILWAY

TRACK and STRUCTURES

Machine Buying 'Way Up in '56

Last year the railroads bought an estimated 8,300 units of work equipment, an increase of 17 per cent over 1955. But the dollar value of these purchases went up even more—76 per cent in fact—to a new all-time high.

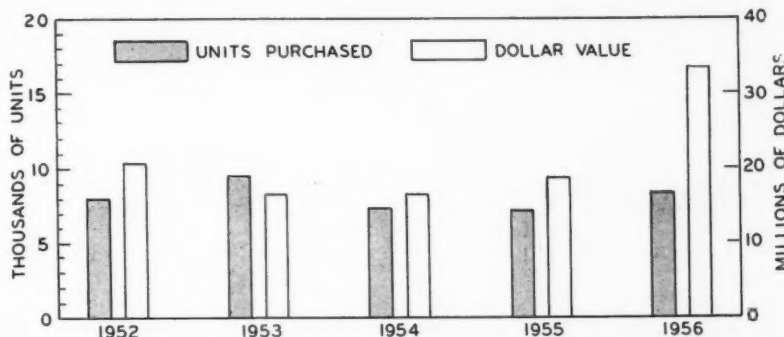
● Sparked by strenuous efforts to use their higher-priced labor forces more effectively through mechanization, the railroads in the United States, Canada and Mexico spent more money in 1956 for the purchase of M/W work equipment than in any previous year.

Last January, this magazine forecast that dollar expenditures in 1956 for M/W work equipment would establish a new record, but the actual purchase far exceeded expectations. This forecast was based on replies to a questionnaire addressed to officers of large and small railroads in the three countries.

To ascertain the extent of the purchases made in 1956 and the anticipated amount to be spent in 1957, a questionnaire was again sent out by this publication to 458 railroad officers. Replies were received from 322 roads, including all but four of the Class I roads.

Of the railroads submitting replies, 169 reported the purchase of 8,194 units of equipment. With this figure as a base it is estimated that the railroads as a whole purchased a total of 8,300 units of equipment last year.

It is further estimated, on the basis of cost figures submitted by many of the roads, that the total cost of this equipment was \$33.1



PURCHASES of heavier and more-expensive units by railroads in 1956 greatly increased the expenditures over preceding years. If plans of railroads reporting on 1957 purchases go through, expenditures for the coming year also will be high.

million. This compares with 7,100 units purchased in 1955 at an estimated cost of \$18.75 million.

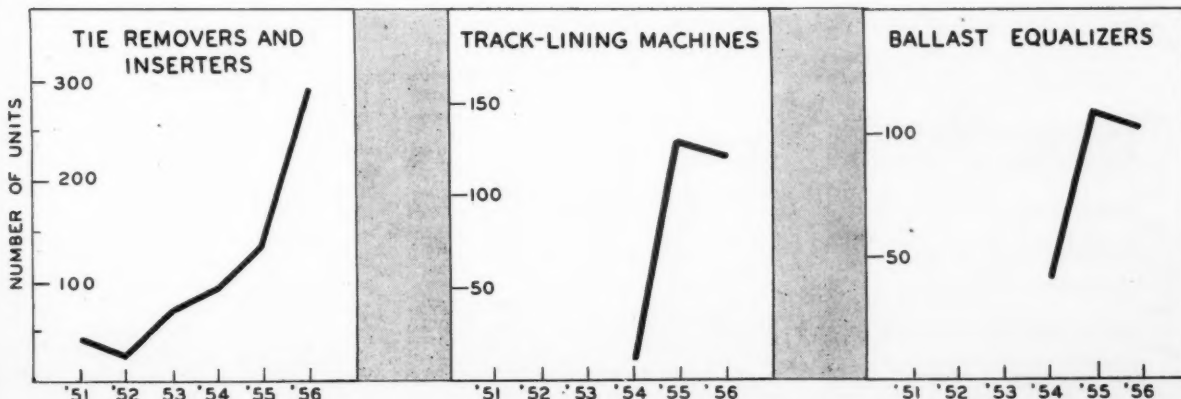
What About 1957?

Some roads, 92 to be exact, reported on their anticipated expenditures for M/W work equipment for 1957. Forty stated that they would buy more equipment, six roads said they would buy the same, and 46 roads stated that they would buy less than 1956. These 92 roads spent \$15.3 million for this equipment in 1956 and said that they would spend \$14.1 million next year, or 8 per cent less.

Even if this decreased percentage is applied to the railroads as a whole, the total expenditure for work equipment will amount to \$30.5 million—the second largest expenditure on record for this purpose and 62 per cent more than in 1955.

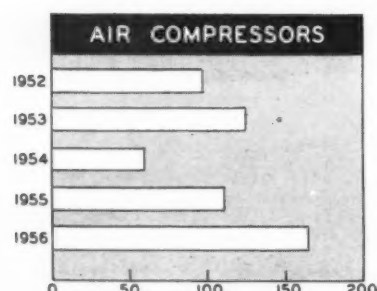
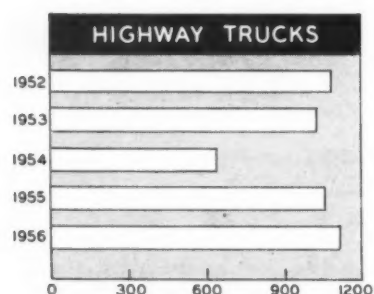
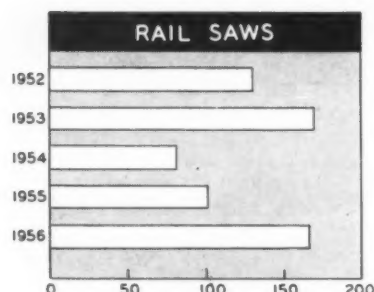
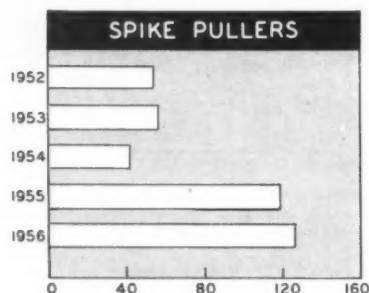
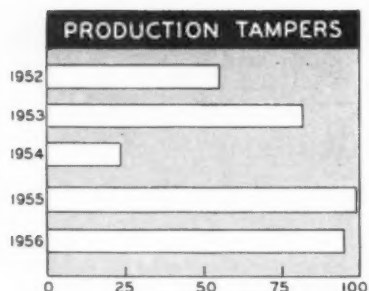
The estimated expenditures for 1957 were submitted in a lump-sum form so it is not possible to determine what types of work equipment are being considered for purchase next year. However, there is no doubt that the total expenditure for work equipment in 1956 reached a record level because the railroads bought more of the larger and more

Three reasons why total equipment purchases have gone up . . .



Purchases of five types of equipment . . .

(Bars show units bought)



expensive machines. This fact is borne out by the reports giving the number and types of units purchased.

The reported purchases of work equipment during 1956 have been segregated into major categories and are shown in the accompanying table. Each category, except the "Unclassified Items," shows that more units were purchased than in the previous year. Leading the field again was the item for the transportation of men and materials. This includes passenger automobiles, trucks, motor cars, push cars and trailers, all of which showed increased purchases in 1956 over the year before.

The categories of heavy units which showed the greatest gain were grading equipment and cranes. These include both crawler and wheel tractors, bulldozers, motor graders, scrapers, spreader-ditchers, off-track ditching machines, power shovels, draglines, cranes of both on-track and off-track types, and tractor and bucket accessories.

The demand for machines for heavy lifting also is evident in the bridge and building equipment, as more derrick cars and hoists were purchased in 1956 than in the previous year. Among the equipment for the B&B department, increases were also noted in the purchase of chain saws, impact wrenches, wood borers, portable pumps, concrete-breaking tools, and pile drivers and hammers.

Tie-Renewal Equipment Up

The trend toward "cvele" maintenance and the mechanization of the largest item of maintenance expense—tie renewals—is having a decided effect on the purchases of machines used in connection with this work. In 1955, the number of such machines reported purchased

was 53 more than in the preceding year, and the number reported purchased in 1956 was 211 more than the 1955 total. The great acceleration in purchases of this equipment reflects the keen interest which maintenance officers are taking in reducing the overall cost of this work.

Purchases in 1956 of on-track production tampers, ballast equalizers and track liners held very close to the high levels reached in the previous year. The smaller four-tool tamping outfits, powered by compressors or generators, showed a slight gain. Purchases of power jacks, tamping jacks and jack carriers showed substantial gains.

For the second consecutive year, increases were reported in the number of spike pullers and spike drivers purchased. While these machines are listed in the rail-laying equipment category, it is apparent that many such units were acquired primarily for use by tie-renewal gangs. Substantial increases occurred in purchases of rail drills and rail saws in 1956, with smaller increases showing up for bolting machines, creosote sprayers and track-gaging machines.

The relatively small gain in the weed-control category was due to an increase in the purchases of off-track mowers, power lawn mowers and on-track weed burners. Ballast discers and scarifiers also showed a slight gain, but the number of weed-spray attachments dropped from 25 to 19. The little activity in the number of weed-spray attachments is no doubt attributable to the fact that many roads contract their chemical weed-spraying work.

The category for miscellaneous track equipment includes units which are used mostly for ordinary maintenance. Increases are reported in the purchases of small grinding machines, grouting outfits, rail-flange lubricators, house trailers, curve-lining instruments, joint oilers, snow-removal equipment and rail-flaw detectors.

Two railroads, the Alaska and the Ferrocarril del Pacifico, S.A., reported that they were rehabilitating extensive portions of their lines, which accounts for the considerable quantities of work equipment they purchased last year.

Although 37 railroads reported using leased work equipment last year as compared with 32 in 1955, the number of units leased dropped from 327 to 216. Two railroads reported that practically all their maintenance work was done with leased equipment.

Purchases of Work Equipment

	Number of Units	
	1955	1956
Ballasting Equipment	786	853
Bridge & Building Tools & Equipment	564	619
Cranes	40	82
Grading Equipment	228	325
Miscellaneous Track Machines	680	894
Power Plants	365	498
Rail-Laying Equipment	684	898
Tie-Renewal Equipment	149	360
Transportation of Men & Equipment	3,070	3,293
Weed-Control Equipment	149	157
Unclassified Items	276	215
Total Units Reported	6,991	8,194



WEED-GROWN track such as this was not an uncommon sight a few years ago, especially on branch lines. It is becoming less

common today because of the more extensive use on the railroads of the improved means of control now available.

Conference Gets at the

Roots of the Weed Problem

First of Two Parts

When the research staff of the Engineering Division, AAR, sent out invitations to chief engineers and maintenance engineers to attend a two-day conference in Chicago on the subject of weed control, they were surprised to receive so many acceptances—so many in fact that the number far exceeded the seating capacity of the largest conference room at the AAR Research Laboratory. They were compelled to schedule two such conferences, one on November 8-9 and the other November 13-14.

In arranging the program Rockwell Smith, roadway engineer, invited authorities on the subject of weeds and weed control to be present and take part in the discussion. These included agronomists, university professors, chemists and weed-control specialists from supply and service companies.

G. M. Magee, director of engineering research, AAR, welcomed both groups and spoke briefly on the test plots and experimental work underway at Iowa State College. To get a good cross section of vegetation control throughout the country, he said, similar test plots and experiments are being conducted under cooperative agreements with the University of Florida, Montana State College and North Carolina State College.

Maintenance engineers came from all parts of the country to attend a two-day conference held at the AAR Research Laboratory in Chicago for discussing the subject of weed control.

Authorities from universities and experts from chemical and service companies led the way in presenting the various aspects of this problem.

Highlights of the discussions that took place on the first day are given in this article. Subjects discussed on the second day included the control of specific vegetation, the use of additives and chemical combinations, noxious weeds and spray equipment. The discussion of these subjects will be summarized in the February issue.

Dr. E. G. Rodgers, associate professor of agronomy, University of Florida, said that a common prerequisite of a good weed-control program is a knowledge of the characteristics and general behavior of the plants that are to be controlled. Plants that live for indefinite periods generally are the most difficult to control in areas such as on railroads.

These perennial weeds have relatively deep root systems that contain surprisingly large quantities of stored food. These roots often can remain alive over long periods while little or no top growth occurs. As long as they are living, these roots are potentially capable of producing new top growth whenever favorable environmental conditions occur. To kill such root systems with herbicides, he said, a

material is essential that either will be translocated throughout the root system itself and kill the roots, or be moved downward through the soil with sufficient phytotoxic properties to kill the roots on contact.

Annual weeds, Dr. Rodgers continued, often present specific control problems. These plants live only one season, but, during that season, growth normally is vigorous with considerable quantities of foliage being produced. Such foliage may be present in sufficient quantities to cause wheel slippage.

Reproduction of weeds is carried out in one or more of several ways, he said. Annual weeds begin growth each season from seed and thus are dependent upon seed production for their survival. Such plants normally produce highly viable seed in tremendous quantities.

Getting at roots of the weed problem . . .



CONTRAST between treated strip and adjacent untreated area indicates degree of weed-control possible today. Weed killer used contained soil sterilant.

ties. Prevention of seed production obviously would aid in control of these plants. However, such prevention must be applied uniformly to an area for control to be effective, since dissemination of seed often is over long distances. Prevention of weed seed formation and development on roadways would not be effective unless such prevention also were practiced in adjoining fields and other nearby areas.

Many perennial weeds produce large quantities of seeds also. While the annual plant dies after production of a seed crop, the perennial weed normally continues to live and produce additional seed crops year after year. Perennial weeds also reproduce by such vegetative means as creeping underground stems, bulbs, tubers, running stems on the surface, and vines. Such multiplicity of reproduction methods, combined with the perennial nature of these plants, explains at least in part the complexity of effective weed control measures.

Botanical classification of weeds is based upon vegetative characteristics, such as size and shape of leaves, inflorescence, stems and root system. The family generally is the basic unit of classification. In referring to individual weeds, however, each weed is known by its common name and scientific name. The common name of a given weed often varies from one locality to another, and the use of such names alone may lead to confusion. For this reason, scientific names are universally used, he said.

The individual plant also is classified botanically on the basis of

characteristics that often are associated with the response of that plant to herbicides. The size of the leaf may be associated with plant response to herbicides since the larger leaves intercept more chemical spray than comparably smaller ones, he said. The thickness of cuticle may influence penetration. Leaves that stand relatively parallel to the soil surface will intercept and probably retain more of the spray than a leaf of comparable size which stands more nearly erect.

● Pest Plants Move In

C. W. Bothe, maintenance of way chemist, Santa Fe, reported that, for the first three years of chemical weed control, he found it relatively easy to control vegetation with reasonably good success. But after that, he added, even though the growth is thinned out considerably, hardy types of weeds become a problem. However, their growth is quite spotty. These hardy plants, he said, are resistant to the control method first used and require an entirely different method of treatment.

He also stated that, when the pH factor of the chemicals is brought down to the acid side, he had more success in controlling certain types of weeds, such as Russian thistle and Mexican fireweed, which are definite problems in the western territory, especially during long dry spells. Using chemicals of the low pH value, however, is hard on the equipment, he said. G. W. Luvisi, National Aluminate Corporation, said it was his opinion that,

when using systemic chemicals, better results are obtained if the pH of the solutions is at a neutral point or on the slightly acid side than if it is alkaline, regardless of the pH of the soils.

● Principles of Weed Control

In a panel discussion of the general principles of weed control, it was brought out that the parts of the plant which are actively growing generally are more responsive to herbicides than those parts where no growth occurs. On broad-leaf plants, the apical growing point is relatively exposed at the top or apical end of the stem. Herbicidal sprays generally can cover this point very well, which often is thought to be a factor associated with the greater susceptibility of broad-leaf weeds to hormone-type herbicides. The growing points of the narrow-leaf plants, such as grasses, are well concealed within a whorl of bud leaves and thus are protected from chemical sprays. Such concealment may be related to the relative tolerance of grasses in general to many herbicides.

Dr. Rodgers stated that a hypothesis has been offered that the greater percentage of the total plant that is meristematic in nature (i.e., cells which are capable of rapid growth), the higher will be the level of herbicidal susceptibility of that plant. General observation has indicated that this may be true, he said. Plants usually grow most rapidly in the spring and at that time a higher percentage of the total plant system is growing, or meristematic in nature. Herbicides applied then generally have been more effective in controlling weeds.

Successful control of perennial weeds, and annuals to some extent, he said, requires translocation, or movement of the herbicide from the point of application throughout all parts of the plant, particularly the root system. Satisfactory kill of perennial plant roots generally has not been realized with soil application of herbicides except through the use of high rates of application or more expensive materials, Dr. Rodgers said.

However, movement through the plant system to all parts of the roots has been realized. Information that has been available for some time indicates that herbicides are moved from the leaves to stems to roots in conjunction with movement in that direction of plant food that is produced by photosynthesis in the leaves, Dr. Rodgers continued.

Foliar applications of herbicides are more effective when applied in the spring at about the time when most leaves have reached their maximum size and food is being translocated downward at a rate more rapid than later in the season.

● Methods of Control

C. G. Parris, agronomist, AAR, explained the chemical and mechanical methods of weed control. The chemicals used are three types of herbicides called contact, translocated and soil sterilants.

The contact type of herbicide kills primarily by contact with plant tissue rather than as a result of translocation. It is used effectively on annual plants but requires a volume sufficient to cover all vegetation. It is more effective in the mid-west area where a drought period occurs during late June and July and August. Two or more treatments are necessary in the southern regions where the growing season is long and rainfall abundant, but the perennial grasses, such as Johnson grass, Bermuda grass and nutgrass, add to the difficulty in seasonal control in this area.

Translocated herbicides enter a plant through the leaves and are translocated through the plant system. This type of material is effective on perennial species because of its ability to kill the deep roots and underground stems. Examples of this type of material are 2,4-D, 2,4,5-T and MCP (Methoxone) which are used on broad-leaf species. Dalapon is used on grasses.

A soil sterilant is a herbicide which prevents plant growth when it is applied to the soil. It enters the plant through the roots and is carried through the plant system along with water and plant nutrients. This type of material is relatively insoluble and requires sufficient moisture to leach downward into the root zone of the plants. However, he added, excess precipitation will leach this type of material out of the plant root zone.

The mechanical methods of weed control, Mr. Parris continued, include mowing, burning and ballast plows. The purpose of mowing, he said, is primarily to prevent seed production, and removal of unsightly weed growth. In some cases repeated mowing of perennial plants might tend to weaken the food reserves in the roots, but seldom kills these plants. Repeated mowing prevents seed production, thus reducing the infestation by annual weeds.



SOME REGROWTH is evident here a year after application of herbicides that penetrate the plant systems by the process of translocation.

The object of burning, Mr. Parris said, is to destroy weeds and remove objectionable debris from an area. When using a weed burner, the flame should be adjusted to cause wilting, but not charring. This results in death of the vegetation within a few days and dead plants may be consumed by a second treatment. Two such treatments reduce the time required to burn the vegetation, use less fuel and are more economical than a heavy single treatment, he said.

Mr. Parris said the ballast plow is used in some sections to prevent germination of weeds or encroachment of vegetation along the ballast toe-line. This works very well, he added, when the annual plants have just emerged. However, this method requires a number of treatments each season.

● Why So Many Names?

L. L. Coulter, industrial weed control specialist, Dow Chemical Company, explained why one herbicide often has several names. Each material has a name by which it is known by chemists. These names are ordinarily too long and complicated for common use, so the chemical is also given a common name. This term can be used by all manufacturers and other agencies. However, to identify a product which is prepared for use in a given manner by a specific manufacturer, it is also given a trade name. In the instance of a well-known grass killer, sodium 2,2-dichloropropionate is the chemical name, dalapon is the common name and Radapon is the

trade name which identifies the finished product and is associated with a specific manufacturer.

The trade name and label, Mr. Coulter continued, are registered in Washington, D. C. But, before this is permitted, the chemical combination must be tried out extensively to establish that it will do what the manufacturer claims it will. The ingredients also must be made known and the manufacturer must show this information, along with the dilution and dosages at which the material has proved effective, on the label of the packaged product. The acceptance of a product for registration, he added, should not be construed as an endorsement of the product by Washington.

Dr. M. J. Janes, biologist and chemist, Socony-Mobil laboratories, described the use of aromatic oils as sprays and said that they can be used alone as contact sprays, in combination with other chemicals, and in alternate spray programs. It is not possible to predict the herbicidal properties of these oils by the usual specifications, he said, and thorough field testing is the best assurance of good quality. Proper distillation will insure satisfactory flash point and retard drifting.

Lin Harris, assistant manager, Chipman Chemical Company, pointed out that the amount of moisture affects the duration of control and effectiveness of the sterilant herbicides. It was his opinion that a combination of a soil-sterilant type with a foliage-type chemical may result in a better kill of brush.

Prof. F. W. Slife, extension agronomist, department of agronomy, University of Illinois, mentioned three things about spraying that should be kept in mind. One was the hazard of the material being used with respect to nearby crops. This is especially true of the volatile forms of 2,4,-D and 2,4,5,-T, because after application these form volatile gasses which are spread by the wind.

The second point to remember, he said, is that, when there is a possibility of drift, the formulation becomes of less importance. Spraying should not be done in a high wind nor at any time when air movement will carry spray particles off the right of way. Only men of long experience in spraying can determine when air movement is favorable for spraying, and he thought that railroads would be better off in many instances to hire the spraying done by service companies than to rely upon the judgment of their own employees.

The third thing to remember, he said, is that in using the same chemical year after year a tolerant species of plant moves in and multiplies rapidly due to less vegetative competition. Chemical sprays should be changed and a soil sterilant used occasionally, even though it is a more expensive material.

Rockwell Smith stated that the time to kill the resistant plants that move in is when they are still in small patches. This work can be done by spot treatment; an experienced man equipped with a small applicator can kill these plants at less expense than if they are left alone to grow into a solid mass, he said.

● Stock Claims Kept Low

J. W. Purdy, engineer maintenance of way, B&O, reported that he had been using the arsenical sprays for the past six or seven years. At first he used the spray with a stock repellent, but for the last three years he has been using the straight arsenical spray without the stock repellent. During the first two or three years, there were some claims received due to stock being poisoned, he said. However, with better supervision and the confinement of the spray to the track section and berms along the track, these claims were reduced. During 1956, on his territory on the Western Region of the B&O, total claims were between \$1,000 and \$2,000. Extreme care must be used not to spray while passing over streams or

bridges and not to spray near the right of way fences, he said. As a result of this arsenical spraying, the ballast section on the main track is free of weeds and good control has been obtained on the berms.

Prof. Slife said it should be understood that the term "resistant," as applied to weeds, does not mean a plant that acquires an immunity to a chemical, such as flies and other insects do to DDT. The term "resistant" applies to the pest plants that move into an area after the original vegetation has been destroyed by a particular chemical. These plants, he said, are resistant to the chemical first used.

C. L. Towle, chief engineer, DT&I, reported that his line now has large numbers of these resistant plants, such as horsetail, thistles, milkweed and bouncing bet, and he wondered what was the best chemical to use to eradicate them. Prof. Slife replied that, when plants which are resistant to 2,4-D or 2,4,5-T begin to increase, the best answer is soil sterilants, such as chlorate, CMU or boron compounds. These will have to be used at heavy rates of application, he said, and the cost will be high. But, they should be used only for spot treatment, rather than general sprays, and this will help in keeping the costs at a minimum.

Mr. Towle said he had noticed that, where heavy applications of chemical sprays have been made in signal territory, there was a tendency for the signals to display the "stop" indication during and following a heavy rain. Rockwell Smith agreed that this sometimes occurs and he thought that the men in the signal department should be advised ahead of time whenever spraying is to be done so that they will be prepared for such occurrences.

● What Chemicals to Use

Dr. Rodgers stated that the particular types of weeds that exist in a given area will determine to some extent the type of herbicide which would have the highest possibility of success in the control program. In areas where soil sterilization is desired, such as in yards and around buildings, herbicides of the urea type, and similar materials having lasting soil residues, would be preferable. Control of perennial broad-leaf plants, he said, might best be carried out by the use of phenoxy-type herbicides, such as 2,4,5-T or 2,4,5-TF. Viney perennial weeds, which tend to crawl laterally

up railroad embankments and onto the roadbed, offer a special problem but can be best controlled by the latter group of chemicals, he added.

● Effect of Climate and Soils

Dr. Rodgers explained the significant differences of herbicidal action as affected by temperature, moisture and length of growing season.

A temperature of from 60 to 90 deg F generally is best for maximum herbicidal efficiency, he said, and an adequate, but not excessive, moisture supply is essential, particularly for those herbicides applied to the soil. In areas having longer growing seasons, herbicides are required which will provide sufficient residue in the soil to control weeds over this long period of time, as contrasted to regions farther north with shorter growing seasons.

The coarser soils, such as sands, Dr. Rodgers continued, generally will not retain sufficient quantities of herbicides nearly as long as will the finer-textured soils, such as clays and silts. Soils with a high organic matter will retain herbicides over a much longer period than will sands. However, these finer-textured and organic soils generally require a higher rate of herbicidal application than do sands to yield a given degree of control.

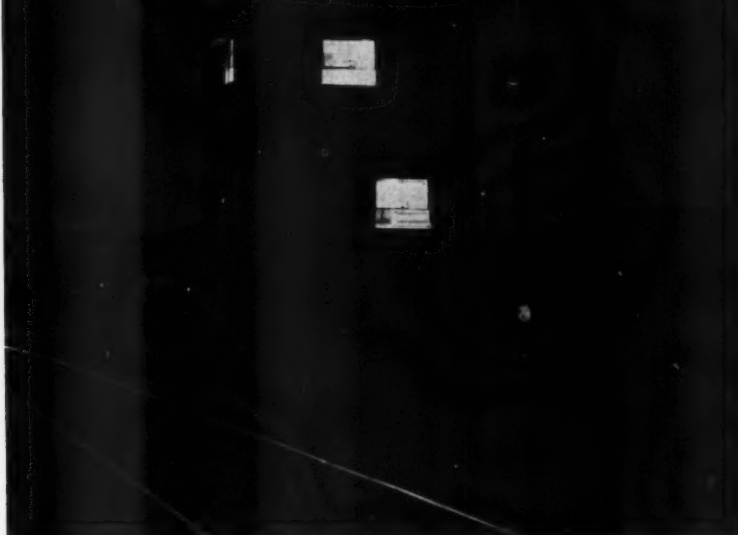
Mr. Coulter said that soils are obtained from so many different sources when constructing embankments that it is difficult to generalize on the best ways to kill the plants growing in them. Also, roadbeds are designed to give maximum drainage and this often reduces the effectiveness and permanence of herbicides because rapid drainage takes the chemicals away with the water. Clay soils often acquire an impervious crust so that a rain can quickly wash away chemicals. On the other hand, he said, sandy soils do not present this problem.

Mr. Coulter stated that the acidity of soils makes a difference in the action of the herbicide. Also, the amount of nitrogen and carbon in soils will influence the amount of kill with some herbicides. Plants growing in weak soils are themselves relatively weak and easy to kill; reinvasion is slower. He cautioned that railroads setting up test plots should be careful to get typical areas when selecting the sites because the types of vegetation which will flourish are often determined by the soils of which the embankments are made.

The case of the **Yardmaster** in the **Coal Tower**



INSIDE, modern materials, pastel colors and efficient heating and lighting are combined for efficiency and comfort.



NOW, it's a completely modern, functional yard office, far superior to the previous antiquated office.

● Have you heard about the yardmaster whose office is in a coaling tippie? It's true, and here's how it happened:

In 1947, at Oakfield, Me., the Bangor & Aroostook put the finishing touches on a brand new concrete coal pocket. But, it wasn't long before complete dieselization had rendered the tower obsolete. Other roads, faced with similar situations, were turning to dynamite and "skull crackers." Not so the BAR.

Oakfield is a major division point. For years the yard office was situated in a rather antiquated structure which was accessible only by crossing a total of 15 busy tracks. Replacement and relocation of the yard office building was one of "those" projects—repeatedly postponed because of the expense involved. The subject came up again last year with the result that a group of BAR officials decided to make an inspection tour of the area to see if, by chance, some existing structure could be utilized.

You can guess the rest. The coaling tower was in just the right spot—next door to the enginehouse, fuel and sanding facilities, and repair tracks—and on the *accessible* side of the tracks.

First step in converting the coal pocket into an office building was the removal of the machinery which had served the 80-ton automatic plant. B&B forces went to work with the coming of spring. Concrete block walls replaced a wooden enclosure that had previously been placed between the legs of the tower, and enough struc-

tural steel was salvaged to carry floor joists for three floors. Windows were provided in the concrete block walls around what was once the weigh hopper area.

The first floor was constructed 6 ft above the ground with its floor joists resting on the old concrete collision walls. This floor contains washroom facilities, heating plant and entry. The second floor of the structure has been provided with a work area for conductors, a lunchroom for trainmen, housing for communications equipment and lockers for train crews.

The third floor contains the yard office proper: a 20-ft by 20-ft room with continuous windows that give the yardmaster a view of the entire yard. A slatted wood canopy, built into the reinforced concrete window lintels, acts as a sunshade.

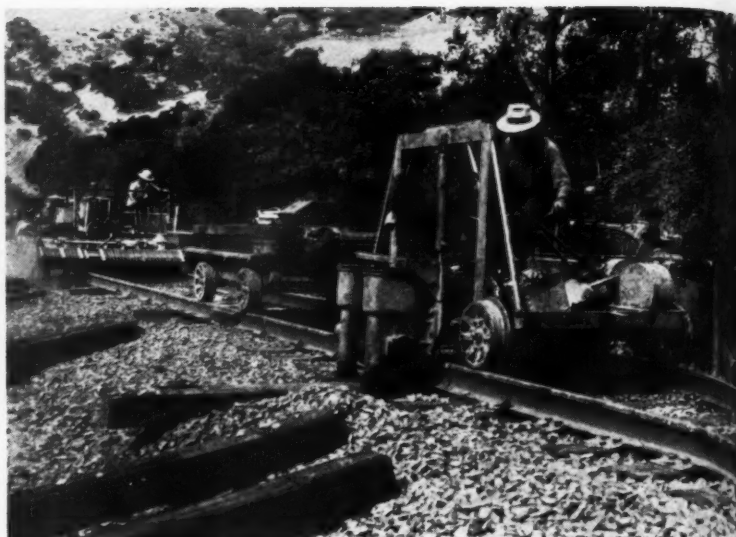
Throughout, the office building interior is finished in Celotex wallboard with suspended acoustical ceilings and asphalt tile flooring. Lighting consists of flush-mounted fluorescent units of the diffusing type. Heating is accomplished by means of a hot air plant suspended from the first floor joists.

Construction of a stack for the heating plant posed somewhat of a problem for a while—inasmuch as the structure is some 58 ft tall. The problem was solved by running a smokepipe to an adjacent concrete hoist house where a small chimney was constructed.

The entire job of conversion, including the installation of extensive communication facilities, was completed in only a few months' time.



1 MACHINE made by WP forces removes ballast from cribs at one end of each tie to be taken out. Purpose is to make it easier for knurled cylinders on tie remover to get a grip on tie. Man at right is using bar to feed ballast under rail to digging wheel. Cribbing operation was formerly done by hand.



2 SPIKES in ties to come out are removed by laborer with Fairmont spike puller. Same man has time to cull out old spikes that are unfit for re-use, remove rail anchors at ties that are to be taken out, and peel off tops of badly plate-cut ties to facilitate their removal.

Building a Mechanized Tie Gang

Year's experience with an experimental organization on Western Pacific has resulted in the decision to add two more gangs. The three gangs should be sufficient to put in all the road's ties mechanically.

Expects each gang of 20 men to renew a minimum of 250 ties per day. Organization includes homemade cribbing machine.

• Tie renewals on the Western Pacific are now well on the way toward being fully mechanized.

During 1956 an experimental gang was under observation, and by the end of the season the road's maintenance officers were of the opinion that, except for details, the organization and equipment had been pretty well established. It is their thought that three such gangs, working on a cycle of three years, will be capable of handling practically all tie renewals on this 1200-mile line. The plan is to organize the two additional gangs as soon as conditions will permit.

Several factors helped to determine the organization and equipment for the gang. One was the road's practice of installing its ties

without raising the track. Another was the desire to limit the number of men in the gang to a maximum of 20, including the foreman.

It was decided to organize an experimental gang around two special tie-renewal machines, one for removing the old ties and the other for pulling in the new ones. The tie machines used varied as to type. One type which gave excellent results, according to WP officers, has rotating knurled cylinders that grip the sides of the tie. The cylinders function most effectively if their grip on a tie is extended by removal of some of the crib ballast.

When the experimental gang was first organized on the WP the work of removing ballast from the end cribs at ties to come out was per-

formed manually. But this operation is now being done by a homemade track-mounted machine in which the main working part is a chain-driven wheel that can be lowered into the cribs. Transverse teeth on the rim of the wheel kick the ballast out to the shoulder. A metal guard covers the wheel. The machine is powered by a gasoline engine which drives the wheel through a hydraulic transmission.

The cribber is doing its job satisfactorily, according to Mark Chilton, supervisor of track, who helped develop it. However, for most efficient operation he feels a self-propelling feature should be added.

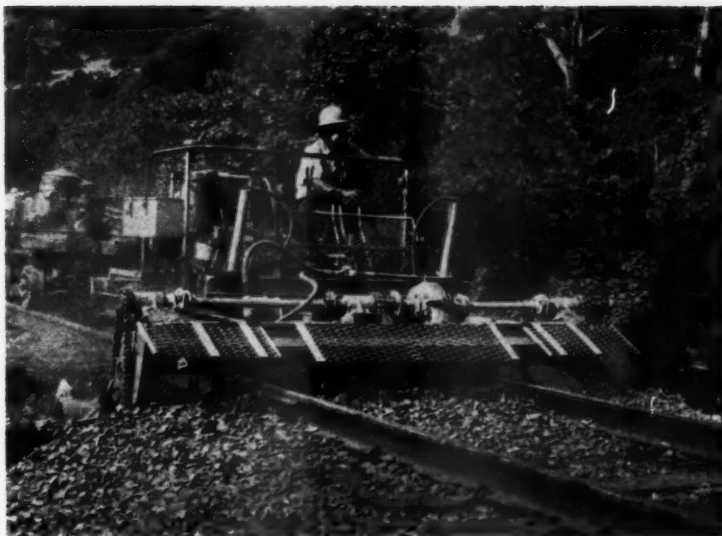
When the experimental organization was inspected last fall it consisted of 22 men and the foreman,

OLD TIES are removed with Matisa tie-renewal machine. Two laborers, working immediately ahead of this machine, remove tie plates by lifting rail slightly with hand jacks. Use of jacks also aids removal of plate-cut ties. Push car towed by tie-renewal machine carries turntable, gasoline, and miscellaneous tools and supplies.

3

4

OLD TIE BEDS are cleaned out and dug down as necessary by Fairmont Tie-bed Scarifier. Push car towed by this machine carries turntable, as well as gasoline and miscellaneous tools. Directly ahead of the scarifier a laborer throws the old ties into the clear and lines up the new ties in approximate position for insertion.



5 NEW TIES are pulled into position by second Matisa tie-renewal machine. A laborer holds new tie up until it is started between the knurled cylinders on tie inserter. New ties, with tie pads in place (if used), are tamped by 4-tool Jackson Vibratory outfit, after which two men with jacks insert new tie plates. A laborer then sets spikes in new ties, which . . .



6 . . . ARE DRIVEN by air hammer with spike-driving attachment. Air is furnished by 3R36 1-R compressor mounted on rollers. Same man that sets spikes also nips ties for spike driver where necessary. Last man in gang replaces rail anchors, does a partial job of dressing ballast, relieves man on spike hammer, and also assists spike setter when gaging is necessary.

plus these principal units of equipment:

Homemade cribbing machine
Fairmont hydraulic spike puller
Matisa tie-renewal machine for removing old ties

Fairmont Tie-Bed Scarifier
Matisa tie-renewal machine pulling in new ties

Jackson four-tool vibratory tamping outfit
Ingersoll-Rand 3R36 air compressor for operating a pneumatic spike driver

The sequence of operations and the duties of the men are shown by the photographs and the text presented in connection with them.

Mr. Chilton, assisting the roadmaster on the district where the gang was working, spent a great deal of time with the gang during its experimental phase, supervising use of the various types of ma-

chines. He explained that the production had ranged between 200 and 300 ties per day. He feels it should average at least 250 per day.

"She's just the thing," is the opinion of Fred Reith, gang foreman, but he feels there is still room for improvement in some of the follow-up operations.

The arrangement under which the tie gang obtains use of the track is determined largely by the fact that practically all WP main-line trackage is equipped with CTC. The set-up is such that the gang makes full use of the CTC signaling potential in the territory in which it is working. Here's how it works:

When the gang starts work in the morning the foreman arranges with the dispatcher to have use of the

track between two absolute signals for a specific time which is determined by train schedules. During this period the absolute signals are set at red. Toward the end of the allotted period the equipment is removed from the track after which the foreman notifies the dispatcher that the line is clear. After the train has passed the foreman obtains use of the track for another stipulated period. Flagmen are not required.

Personnel of the gang is housed in camp cars and is transported to the work site in a truck. At noon a hot lunch is served, which is brought from the camp in large vacuum cans.

The tie gang was organized under the general supervision of C. E. Elliott, engineer of track of the WP.



FOREMAN BONNEY (right) discusses rule of the day with his track gang. This demonstration was held at a recent session of the National Safety Council. The backdrop was painted by F. G. Morrone, general foreman.

Here's How to Hold a Safety

Reproduced on these pages is a very unusual "on-the-job" safety meeting held by a track gang on the Pennsylvania. Two characteristics set it apart from the hundreds of such meetings that are held daily throughout the country.

First, it didn't take place on the job at all, but in a hotel at Chicago before a session of the Railroad Section of the National Safety Council.

Second, it wasn't a real meeting but a demonstration staged for the purpose of showing how such meetings should be conducted to get the best results.

Cast of Characters

(In Order of Appearance)

Foreman Frank A. Bonney and Trackmen Saturino Leon, Frank Cerneglia, Henry Jones, Andrew Gilicms and Fernando Dominques. Another trackman, John Thomas, was present but did not take part in the discussion.

● The following conversation takes place as the men arrive at the tool-house for the day's work. Mr. Bonney is the first on the scene.

Leon: Good morning Mr. Bonney.

Bonney: Good morning Leon, how are you?

Leon: Fine thanks. I really slept good last night.

Bonney: Is Mrs. Leon enjoying her vacation in Mexico?

Leon: Very much. Thanks for the passes.

[Similar greetings are exchanged as the others arrive.]

Bonney: I am glad to see you fel-

lows all looking so well. It's 6:00 a.m.—starting time. Let's get ready.

[All fix the bottoms of their trousers, put goggles on their caps. Foreman Bonney opens envelope and takes a deliberate look at a train time in timetable and returns timetable to back pocket. He also takes whistle out of shirt pocket and looks at it as if to see if inside is clean.]

Bonney (looking around at group): We all have goggles on our caps, we're wearing safe clothing and safety shoes, and the bottoms of our overalls are fixed so that they won't drag or catch.

Introduction

The demonstration was preceded by brief explanatory remarks by Louis Vilella, safety inspector of the Pennsylvania, under whose direction it was prepared and presented. He explained that the key figure in the demonstration was Frank A. Bonney, a successful track foreman at the PRR's busy 12th Street coach yard at Chicago, assisted by five trackmen, providing "a representative cross-section of track-gang makeup."

He then brought out significant points about the demonstration in these words:

"The actions and attitudes of direct supervision are considered by the employees to be those of top management. In this connection, you will notice that Foreman Bonney follows humanitarian and Christian principles, displays a kind and sympathetic attitude, and makes every employee feel that he is an important part of the operation. Certainly this does much to maintain loyalty, good morale and good employee relations.

"In spite of all this, Foreman Bonney easily maintains excellent discipline. His interest in the employees goes beyond the job and quite often

into off-duty activities. He makes it less likely for his employees to disregard safety instructions because:

(1) He himself follows the safety instructions that he expects his employees to follow.

(2) He explains the reasons for the safety instructions, as well as his reasons for following certain practices as a supervisor.

(3) He plans the work so as to automatically integrate the safety requirements into the work methods.

(4) He keeps the men informed as to occurrences elsewhere, adding weight and importance to their own good safety performance.

(5) He recognizes and acknowledges a safe performance.

(6) He assures his employees of his assistance, and does help them to avoid hazards.

By his actions and attitudes, Foreman Bonney emphasizes the policies and practices that are desirable and practicable, but at the same time does indicate that occasionally it is better to hurt a Joe's feelings or to deprive a Joe of a day's pay than to allow him to continue to work in such a way that he is likely to be injured at any moment.



FRANK CERNEGLIA tells how he removed the cuffs from his trousers.



EIGHT CAUSES of accidents are related by Foreman Bonney to his men.

Meeting on the Job

Jones: Mr. Bonney, I am wearing these overalls that have zippers to take up the bottoms. Is that all right?

Bonney: Yes, Henry. It is a very simple and good arrangement. The rule gives every individual the privilege of using whatever means he wishes to fix them so as to prevent catching or dragging.

Cerneglia: I took the cuffs off my trousers because my wife always gives me h--- for bringing dirt into the house.

Bonney: I know what you mean Frank. I used to have to clean up the dirt I brought in.

Jones: I had a sad experience at 107th street fourteen years ago. The bottom of one of my unsecured trouser legs caught on a stubble and I fell.

Bonney: I know a man whose cuff caught on a motor car brake pedal and he fell off the motor car. Another man's trousers caught on a switch rod bolt, and he fell and

fractured his wrist. I am proud of you boys. You not only practice safe habits, but you also make my job easier for me. It makes me happy that I can say in my reports that you are doing the things the way you know they should be done.

Gilliams: We do things the right way because you always do them the right way, and you show us the right way too.

Leon: Some years ago, a friend of mine had two toes broken because he didn't take a strong hold of a joint bar with both hands and it fell on his toes. I've been wearing safety shoes ever since.

Bonney: Yes, I know. I'm glad we're all wearing safety shoes that are not less than six inches high. That's good insurance!

Well boys, I guess we could relate such experiences all day.

This is a bulletin showing what caused the casualties among maintenance of way men on our railroad during the first eight months of

1956. Before going over the "rule of the day," we will talk about the first eight causes that are listed.

[Mr. Bonney proceeds to discuss the first eight causes of accidents listed in the bulletin. This part of the demonstration is reproduced on the next page.]

Bonney: You can see that even we will be ripe for some of these injuries if we relax in our good safety habits. In the course of our work, let us all try to remember the things that have caused misery to others. You can be sure of my co-operation in helping you to avoid such hazards.

We will take up five more causes day after tomorrow.

(He takes safety calendar from billfold.) The scheduled rule for today is 3183, dealing with pulling spikes. Let us remember these important points:

(1) Make sure claw bar has a firm grip on spike.

(2) If necessary to use a spike lifter, be sure to use suitable object, such as short-handled broom, over head of spike, to prevent its flying.

(3) Maintain a fully braced position.

(4) Grip handle of bar at such a point that hand will not hit turnout rail, or other object.

As you undoubtedly know, we are going to resume switch timber renewal on No. 5 switch on the north ladder.

We will follow the same setup we used yesterday. Let's leave our lunches here.

Jones: Mr. Bonney, I want to ask just one more question. Day before yesterday, we helped Foreman Brown's gang repair a piece of damaged track. Before relieving us at four in the morning, you followed your practice of asking each man, in the presence of the entire gang, if he had been hurt during the emergency work. Foreman Brown's men scattered. Some of his men

have kidded us that we're not grown up, that we can't take care of ourselves and that we need an overseer.

Bonney: Henry, every man is required to promptly report injuries to his superior. However, I have always followed the practice of individually asking each of my men at the end of any work period, in the presence of the entire gang, whether he sustained any injury while working. I do it for three reasons:

First, to protect each of my men. To be sure that I know of any injury in order that prompt medical attention can be furnished so as to prevent infections and serious consequences. This protects you and your dependents. Second, to insure

the company of your continuous services. Third, to know of any causes of injuries in order to correct them.

Jones: Thanks. Now I know.

Bonney: Okay gentlemen. Let's go to work. Each man is to bring along the same tools he brought yesterday. They should be okay because we inspected them last night before putting them away. Anyway, inspect them again to make sure someone didn't use them during the night and put them away in defective condition.

Leon, please bring along an extra switch wedge block. We will be working on two power-operated switches, and we will block them before starting work.

Leon: Okay.

Eight causes of accidents were covered during the "on-the-job" safety meeting

These comments were made by Foreman Bonney about accidents in which maintenance-of-way employees of the PRR were involved during the first eight months of 1956:

(1) Struck By Trains

"One man killed in a yard by a train moving eight miles per hour. The man had worked there 31 years and was apparently too confident and didn't keep proper lookout while walking track. More than half of the men that are struck by trains involve trains moving less than 15 mph. It is so easy to prevent being struck by trains if you look in both directions before stepping on the track. When necessary to walk on the track, you should look in both directions often enough to be sure you see any approaching trains.

(2) Eye Injuries

"The company furnishes us free the best kind of goggles suitable for our work. Yet men sustained eye injuries while cutting brush, striking metal against metal—including three cases of driving track spikes with spiking hammer—pulling spikes, tamping stone ballast with tamping pick, adzing and putting water in a battery.

(3) Operating Single-Action Jack

"Three persons fell backward because they were not braced when a jack 'slipped.'

"Another man was hit on the head when a jack handle 'flew' up. Boys, did you ever see a jack handle that had wings? These jack handles get out of control because the foremen do not require the men to make sure that the latches are in proper and full holding position. You will be surprised to know the number of people that drop the rail or the end of the tie on their own feet when they trip a jack that is under load. You know how to avoid this. You all do it the right way. Fully insert the proper handle in the jack socket and stand at arm's length from the handle before starting to operate or trip the jack.

(4) Handling Material

"More injuries occur while handling material than from any other operation, simply because men are not properly organized, because material is left in unstable

position, because it is not kept under control and because needed skid or stripping protection is not used.

"It is so often claimed that material slips through tongs. The word 'slip' always means that there was a failure. Boys, just remember that no material has life, and it rolls, or falls only when we leave it in an unstable position, when we do not keep it controlled, when we do not keep it free of other loose material, and when we do not position ourselves properly."

(5) Hand Tools

"Injuries that occur while using hand tools are easy to avoid. The first thought must be to make sure that tools are in safe condition. We have talked about this many times and I am glad that you lads are so particular about your tools.

"It is important that the proper tool for the job be used, as well as to use it in the proper manner."

(6) Track Motor Cars

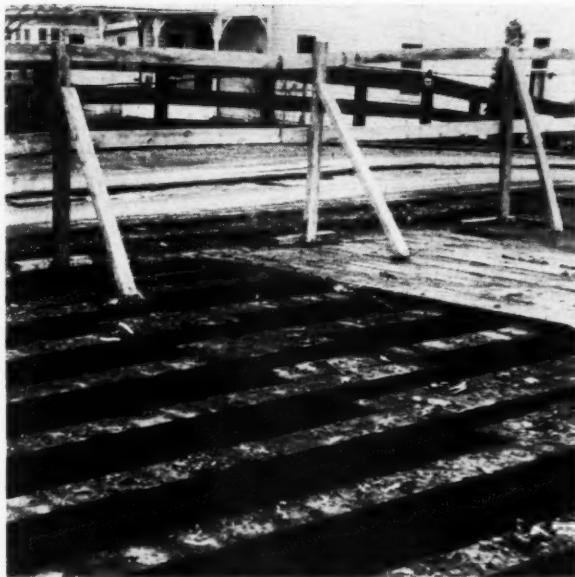
"Many men are hurt because the men operating track car equipment do not have the proper respect for the hazards at highway grade crossings, resulting either in the motor car hitting highway vehicles or vehicles hitting the track car. Track motor car equipment is perfectly harmless if tools and material are properly loaded thereon, if speed is restricted to the situation, if handholds are maintained while riding thereon and if proper lookout is maintained.

(7) Falls

"Many men are hurt when working on ladders, scaffolds, poles and on other elevated places. The remedies are so easy; simply make sure that such facilities are in safe condition, and take the precautions which we all understand, that is, make sure that the ladder is at a proper angle and secured if necessary, have good hand and footholds, and properly erect scaffolds and equip them with handrail and toe boards. Use safety and body belt when conditions require.

(8) Burns

"Much as has been said and written about burns in connection with use of snow burning oil and gasoline, kerosene and other flammable liquids being used to start or build up fire, but men still are permitted to take chances."



OLD FLOORING was badly worn and, while not actually unsafe, was noisy and hard on automobile tires.



NEW FLOORING planks were welded together for permanence. Deck was then paved with a hot asphaltic mix.

Silence, safety and strength gained by

Steel Flooring for Bumpy Bridge

• It wasn't too long ago that anyone driving an automobile across the B&O overpass at Plymouth, Ohio, did so with some trepidation. It wasn't actually unsafe. But the flooring had "gone" to the extent that the passage of a vehicle across it set up quite a racket. And the rough surface imparted quite a beating to a car's tires.

The overpass trestle is constructed of treated timber. Sixty-four feet long, it carries a 34-ft wide roadway with a pedestrian sidewalk on either side. Inspection showed that, while the flooring was in bad condition, the stringers, bents and timber abutments were in good shape.

In deciding to renew the decking, the road elected to use Armco corrugated steel bridge plank. The span was closed to traffic and the old decking stripped off. The steel planks, 24 in wide, were supplied in 16 and 18-ft lengths. Before they were installed, two lengths were welded together to span the width of the structure. The sidewalk decking was not renewed.

The individual planks were attached to the 8-in by 16-in stringers with 6-in lag screws, placed 25

per plank into pre-bored holes. The planks were lapped and joined to each other by welding.

After the steel deck had been installed, the 2-in deep corrugations were filled and the surface was covered to a 1-in depth with a hot asphaltic mix. In conjunction with

this work, the municipality paved the approaches to the bridge.

The entire job took only three days. All of the work was done by B&O forces—a foreman, three carpenters, two helpers and a welder—under the supervision of W. G. Stagge, division engineer.



UNDERSIDE of structure shows stringers, bents and abutments in good condition. Stringers are 8-in by 16-in, spaced on 21-in centers.



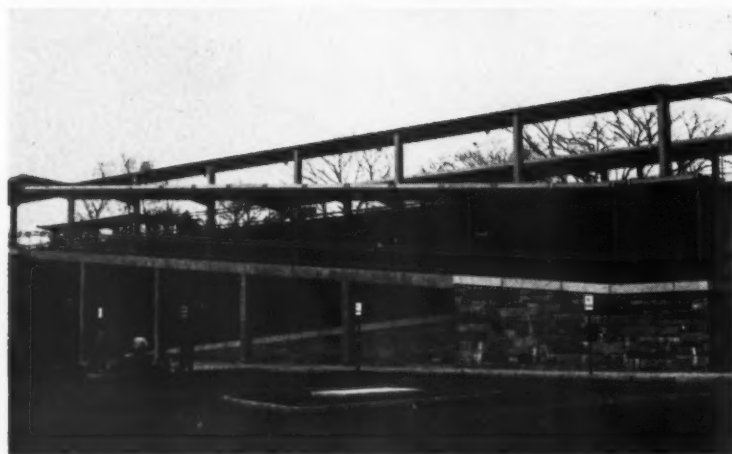
OVER A MILLION TONS of rock fill for the Southern Pacific's Great Salt Lake causeway was blasted off the side of a mountain

recently. The blast is said to be one of the largest non-atomic explosions ever set off in the United States.

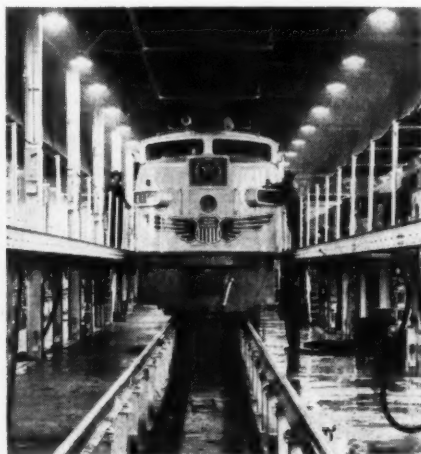


News Briefs in Pictures . . .

◀ **COMPLETELY PREFABRICATED**—even to rails, ties and ballast—these new spans were recently rolled into place on the Long Island to make room for a highway widening project.



RAMPS are featured in this new station constructed by the Boston & Maine at Winchester, Mass. Construction of the new station was made necessary by a large track-elevation program to eliminate grade crossing "bottle necks," which was paid for, in part, with state vehicle tax receipts.



INDOOR SERVICING is accomplished at the UP's new diesel shop at Council Bluffs, Iowa. Water, fuel, sand and other needed materials are piped directly into the building.



WHAT'S THE ANSWER? ...

... a forum on track, bridge, building and water service problems

Large Set-Off Locations

To what extent is it desirable to construct permanent set-off locations of sufficient size to accommodate the entire complement of equipment used by large mechanized gangs? At what intervals should they be placed? Explain.

Not Warranted

By K. E. HENDERSON
Division Engineer,
St. Louis-San Francisco,
Tulsa, Okla.

We do not deem it desirable to undertake the construction of permanent set-offs for mechanized gangs on a large scale. The mechanized program is based on a cycle of six or seven years, and what might fit the problem on a particular territory today might be of little value six or seven years hence when the mechanized gang returns to that territory. During the cycle interval, new machines and new methods will be developed which may render obsolete the set-offs constructed for today's machines and methods.

The only permanent work that might be justified would be berm widening at strategic intervals in a territory where sidings or spurs are scarce, and where running the machines into the clear would involve a movement of several miles. Such berm widening as we do measures about 15 ft by 70 ft with no other refinements, spaced at intervals of three or four miles. The necessary ties for construction of set-offs are then unloaded in advance of the gang and no set-offs of a permanent nature are built.

Our long-range thinking is that the eventual answer is probably portable set-offs to be carried with the machines. These would be quickly assembled at the beginning of each day's work at the most convenient location. H. L. Woldridge, our process engineer at Springfield, Mo., is working on this as an ultimate solution, and has made some progress in that direction.

A method we use to avoid delay to mechanized gangs is to adjust

working hours (within limits of labor agreements) so that as much traffic as possible will pass before and after working hours and during the noon lunch period. We also give advance advice to our operating staff on mechanized work. That staff then effects temporary schedule adjustments of second-class and local freight trains to keep the delay to a minimum.

Large Set-Offs Essential

By P. O. ELLIS
Assistant Chief Engineer,
Maintenance, Missouri-Kansas-
Texas, Dallas, Tex.

Permanent set-off locations of sufficient size to accommodate the entire complement of equipment

used by large mechanized gangs are considered essential to efficient operation. These should be built of earth to subgrade height and be of sufficient length to accommodate all machines and wide enough to permit good clearance of main track for the longest machines on temporary set-offs. The set-off sites should be established at intervals of about one-half mile, varying as may be necessary to avoid unnecessarily heavy grading.

Generally, they can be constructed economically by off-track grading equipment.

Set-off rails for the larger machines in tie-renewal gangs usually are moved ahead by the assistant foreman and laborers using a motor car and push cars immediately after machines are placed on track in the morning. The rails for machines in tie-renewal and surfacing gangs usually are moved by section forces as soon as the gang has passed the set-off site beyond the one being used.

The set-off sites are relatively inexpensive, require little or no maintenance and can be used again and again by mechanized gangs per-

Answers to the following questions are solicited from readers. They should be addressed to the What's the Answer editor, Railway Track and Structures, 79 W. Monroe St., Chicago 3, and reach him at least five (5) weeks in advance of the publication date (the first of the month) of the issue in which they are to appear. An honorarium will be given for each published answer on the basis of its substance and length. Answers will appear with or without the name and title of the author as may be requested. The editor will also welcome any questions which you may wish to have discussed.

To Be Answered in the April Issue

1. What methods can be used to insure accuracy in lining turnout rails where the turnout is made from a curved main track? What special precautions should be observed? Explain.
2. What practical means can be used when installing high-strength bolts with air-operated impact wrenches to insure proper bolt tension? How can the proper air pressure be determined for a particular size of bolt? What happens when pressure is too high? Too low? Explain.
3. What safety precautions should be

taken by men engaged in unloading ballast? What special equipment, if any, should be worn and/or used by these men to prevent injury? Explain.

4. What materials may be most effectively used to clean the ceilings of diesel shops and the interiors of exhaust hoods where unburned fuel deposits have accumulated? How can such deposits be minimized? Explain.

5. What methods may be used to reduce the amount of water collecting in fuel oil storage tanks due to condensation? How often and by what means should such water be measured and removed? Explain.

forming cycle maintenance. The arrangement is flexible and can be used with any machine arrange-

ment that can now be anticipated. In practice, on a single-track railroad with medium traffic, it has

been found that delays to traffic and to the mechanized gangs are not excessive.

Renewing Trestle Chords

What is the best method of renewing the chords on ballast-deck timber trestles when the deck timbers are not to be renewed? Explain.

Insert "Helper" Stringers

By L. P. DREW
Assistant Chief Engineer,
Union Pacific,
Omaha, Neb.

The renewal of stringers in a ballast-deck trestle without renewing the deck is seldom justified or economical, and is very difficult and expensive to accomplish.

The standard construction of ballast-deck timber trestles is such that the stringers are first anchored to the caps, after which the deck planking is spiked to the tops of the

stringers. Necessary waterproofing and the ballast section are then applied.

To renew the stringers without renewing the deck plank involves jacking up the deck timbers a sufficient distance to permit cutting the nails.

After the stringers have been renewed, there is no satisfactory way of again anchoring the deck timbers to the new stringers.

If a condition is found where stringers have decayed or disintegrated or have been otherwise damaged to a point where they require

renewal in advance of a renewal of the deck timbers, a better method—and one used many times—is to insert "helper" stringers in between the existing stringers so as to strengthen the structure until such time as the deck timbers require renewal.

Whether or not this can be accomplished depends upon the type of design of the ballast-deck structure. If the stringers are in chords similar to open deck construction, there is usually space between and outside the chords for helper stringers. If the stringers are uniformly spaced on the caps, and not in chords, helper stringers can be inserted between. These stringers would have to be in short lengths to permit jacking in between caps, but it can be done. However, as stated above, it is seldom justified or economical.

Commercially Pre-Dried Sand

What are the advantages of using commercially pre-dried sand on locomotives? Disadvantages? Explain.

Fine for Small Roads

By BRIDGE & BUILDING SUPERVISOR

I have talked with many other B&B men at conventions and elsewhere about this subject. With a few exceptions, they consider commercially pre-dried sand too expensive. Too expensive, that is, in comparison with the sand they are drying in their own plants. Offhand, this makes sense. I have a few doubts, however, as to just how closely they keep tabs on their sand costs. It just so happens that our railroad has never seen fit to make the big (to us, anyway) investment in sand-drying equipment which our larger brothers take for granted.

First, we don't have many locomotives and, to date, haven't been able to palm off the sanding of these units on any of our neighboring roads. So, we use commercial sand at each of our two servicing points. We store the sand in steel buildings which resemble farm silos. Watertight and above ground, these buildings have given us no trouble in maintaining the sand in proper condition. Sand from these storage

buildings is piped to overhead, gravity-type sanding towers from which it is delivered to the locomotives. We have recently tried using a small belt conveyor for unloading the sand from hoppers into our storage bins with considerable success.

Even if I were associated with a larger road, however, I think I would very carefully weigh the advantages of commercial sand against all the bother and expense of drying plants.

More Economical

By C. F. MUELDER
Assistant to Engineer of Buildings,
Chicago, Burlington & Quincy,
Chicago

Dry sand is as much a necessity for railroads as fuel oil of proper characteristics, coal of high Btu, and properly treated water for boilers and diesel cooling systems.

Many railroads have eliminated sand dryers and green sand stockpiles by the use of pre-dried sand which is unloaded directly from the

cars into a storage house or into a drum which supplies direct sanders or fills overhead storage.

A good supplier of pre-dried sand offers:

- (1) Uniform graded sand free of dirt, clay or foreign objects; and,
- (2) High-silica-content sand with granules having sharp edges not fused by overheating in the drying process.

A great advantage in pre-dried sand is its economical aspect. It reduces the cost of labor by speeding unloading, does not require double handling due to the necessity of running wet sand through the dryer, eliminates the need for wet sand storage, and eliminates the need for a dryer and the cost of operating it.

With the present intense effort of the railroads to operate more economically in order to compete with other forms of transportation and insure adequate earnings, the use of commercially pre-dried sand is a step toward modernization, allowing the mechanical department to operate more efficiently with less help.

Commercially pre-dried sand is even more economical and desirable with a short haul. The longer the haul, the smaller the returns if green sand is locally available. When freight is prohibitive, the customary procedure is to have drying equip-



THE PIONEER COMPANY STILL SETS THE PACE

When William James Reade first introduced weed killer in America it was no easy task to persuade railroads to make use of it.

The rate of pay for a track laborer for a twelve hour day was just about the same as one half-hour today.

But many railroads nibbled for a period of years.

And finally one railroad concluded that killing weeds with chemical was a step far ahead of using scuffle hoes and shovels to remove unwanted vegetation.

The Lehigh Valley was the first railroad to make use of a sizable quantity of chemical. Their order for 6,000 gallons in 1912 created quite a problem for the owner of the company, his son and their one plant man.

There are only a few railroads today that do not use chemical for weed and brush control.

The production of weed killer today and the method of distribution is far more of a science than it was in 1912.

As the pioneer company we have kept pace with all developments both as related to the inclusion of new effective raw materials in our weed killers, and also improved equipment that is installed in our spray cars.

Fifteen complete spray trains will be available in 1957 for our contract work.

The rapid expansion of our business is perhaps the best proof that we have the know-how, the plant capacity and the technicians to justify placing contracts with us.

We are at your service to make recommendations for 1957 requirements.



READE MANUFACTURING COMPANY, INC.

JERSEY CITY 2, N. J.

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RAILWAY TRACK and STRUCTURES

JANUARY, 1957 43

What's the Answer (Cont'd)

ment at the sanding facility. Drying is usually done by a laborer or hostler. Coal-burning dryers de-

pend on the human element for maintaining sufficient fire, and occasionally this element fails. The result: wet sand is elevated into overhead storage or blown into direct

sanders. It packs, and in cold weather it freezes. This human element can be partially off-set in drying sand by using automatic oil or gas dryers.

Renovating Brick Buildings

What methods may be used to renovate the exterior surfaces of old brick structures? Explain.

Can Be Painted

By ASSISTANT CHIEF ENGINEER

There are many methods which can be used to renovate the exterior surfaces of brick buildings. Sand-blasting or cleaning with a steam acid solution are, perhaps, the most widely used. In some cases, however, it will be found that the brick—usually, in such cases, of poor quality to begin with—has crumpled to the extent that cleaning will do little to improve the overall appearance of the building. Siding materials can be applied over the brick surface.

However, the time, labor and expense required by such an operation usually make this practice impractical.

Last year, the "city fathers" of one of the county seat towns served by our railroad requested us to improve the appearance of the local

station building. This building, of brick construction, was built in the 1890's. Since that time the town has grown until today the station building is flanked by a number of modern, attractive buildings. We examined the building, which serves as a combination freight and passenger depot, and discovered a condition similar to that which I have mentioned above. A lack of maintenance—especially tuckpointing—had contributed greatly to the deterioration of the brick. In many places the face edges of the brick had fallen away. Needless to say, the entire structure had, over the years, accumulated a grimy coating of dirt and soot.

After investigating a number of possible remedies, we decided that the most economical and practical means of restoration would be to paint the station exterior. First, the brick, cut-stone lintels and sills and

stone foundation blocks were cleaned with an acid solution applied with a long-handled scrub brush. The building was then tuck-pointed and the broken brick refaced with mortar. Three coats of a special masonry paint were then applied. The brick surfaces were painted rust red; the exterior stone surfaces were painted white. When we had finished it was found that we had done the job at a cost considerably below our original estimate. (Except for scrub brushes; we used dozen of them!)

Deciding that a building with such an attractive exterior should have its "face lifted" on the interior also, we went to work on the inside. Modern materials, lighting, and fixtures were incorporated with the result that, today, we have a building of which we are extremely proud. The painted surfaces of the exterior walls can be easily cleaned by washing and the building has been placed on our regular station repainting schedule. We are presently giving consideration to painting several other such structures on our railroad.

Surfacing After Tie Renewals

When tie renewals are made without raising the track is it necessary to surface track out of face afterward? Why? If so, when should the surfacing work be done? Explain.

Surface as Soon as Possible

By H. B. ORR
Division Engineer,
Chesapeake & Ohio,
Clifton Forge, Va

Tie renewals made without benefit of an out-of-face surfacing tend to cause rough-riding track. Consequently, on heavy-duty or high-speed main lines an out-of-face surfacing job should be performed as promptly as possible after installation of the ties.

With the advent of various new machines, it is now possible to install ties without a raise much more cheaply than was formerly done. However, in all cases it is necessary to disturb the old bed to install a tie when a raise is not made. Plate cutting, wear on bottom of ties, gen-

eral deterioration and sub-standard ties installed in past years all contribute to making the new tie from one to three inches larger than the tie it replaces. Regardless of the method used to lower the old bed, and regardless of the tamping done on the individual new tie, it is not seated on as firm a bed as the adjacent old ties which have not been disturbed. This causes a pumping action which produces sloppy and eventually rough-riding track. Furthermore, this places additional strain on the adjoining ties, thereby shortening their life and usefulness.

If the new tie installation is evenly spaced and does not average over one tie per rail length these disadvantages are minimized and careful smoothing will eliminate the necessity for an out-of-face surfac-

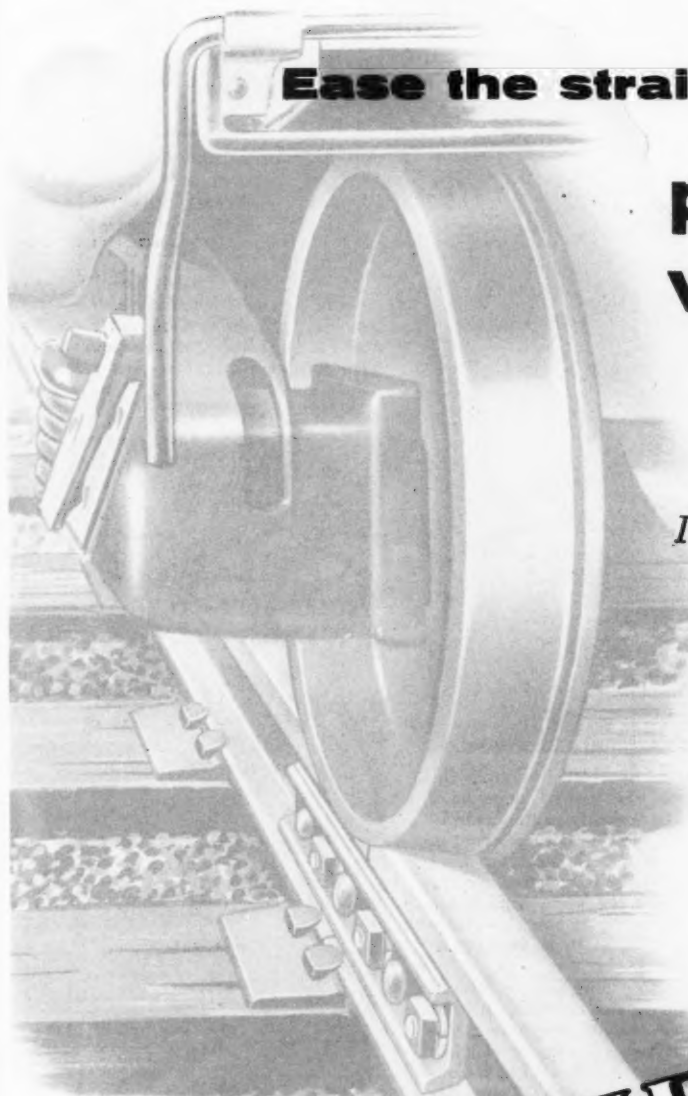
ing. Also, on light-traffic lines with normal drainage these disadvantages are less apparent and the need for an out-of-face surface does not exist solely because of tie installation.

On heavy-duty or high-speed main lines where tie installations average more than one per rail length, or where installation is not regular but heavy in spots, tie installation should be followed as promptly as possible by an out-of-face surface to prevent sloppy and rough track and to eliminate the necessity for excess smoothing.

Many Factors Involved

By G. M. O'ROURKE
Assistant Engineer Maintenance of
Way, Illinois Central,
Chicago

In answering these questions it is presumed that the crossties removed have practically no further
(Continued on page 52)



Ease the strain of

**pounding
wheels!**

Install Improved Hipower
Spring Washers to ease the
stress and strain created by
constant, heavy traffic. NA-
TIONAL spring washers ab-
sorb shocks by equallizing bolt
tensions, and protecting rail
ends and joints. Improved
Hipowers are designed to pro-
vide reserve power for lasting
effectiveness, reducing main-
tenance all along the line!

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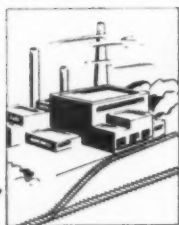
IMPROVED HIPOWERS

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PRODUCTS OF MANUFACTURERS...

... new, improved equipment, materials, devices



AUTOMATIC BLADE CONTROL

OWNERS of Caterpillar No. 12 Motor Graders will be interested in learning of a new device which keeps the grader blade at any desired slope, regardless of the unevenness of the terrain. Made exclusively for this unit, the Preco Automatic Blade Control, which is powered by a standard battery, is said to have demonstrated its accuracy in controlling slopes to within $\frac{1}{8}$ in. in 10 ft so that an operator can finish a given grade with extreme accuracy in a single pass at a higher speed when conditions enable the blade to carry all the surplus material.

When this type motor grader is

equipped with the blade control, the operator selects the desired slope on a dial located conveniently to the controls. The dial is calibrated in both per cent of slope and slope ratio. The operator raises or lowers the blade as required for the depth of cut but the slope will remain as selected, regardless of how the grader frame may be affected by surface conditions.

If desired, the automatic control can be overridden by the operator, or shut off to permit manual operation. Developed by Preco Incorporated, Los Angeles, the Preco Automatic Blade Control is available through Caterpillar dealers. *Caterpillar Tractor Company, Dept. RTS, Peoria, Ill.*



MORE POWERFUL AIR GRINDER

A LIGHTWEIGHT 6-in air grinder with an improved motor—which the manufacturer claims to be 50 per cent more powerful than the previous models—has recently been introduced as a part of the manufacturer's new No. 4 series of industrial air tools.

The new 4-G series of air grinders is being produced in 12 models, incorporat-

ing four different speeds and three different throttle types. Incorporating fewer parts, the new models have five-blade type motors with one-piece rotors and shafts. These models supersede the company's 250 series.

The new models are available in speeds of 4,500, 6,000, 9,000 and 12,000 rpm and come with butterfly, grip and lever-type throttles. The models incorporate a newly designed governor in a unit assembly which is direct-acting and tamper-proof with an adjustable governor spring.

The 4CG series grip type has a handle that is integral with the cylinder housing and employs a steel ball throttle valve. The 4GL series lever throttle handle is made of aluminum with a rubber sleeve for positive hand grip. The 4CB series button or butterfly type has an aluminum

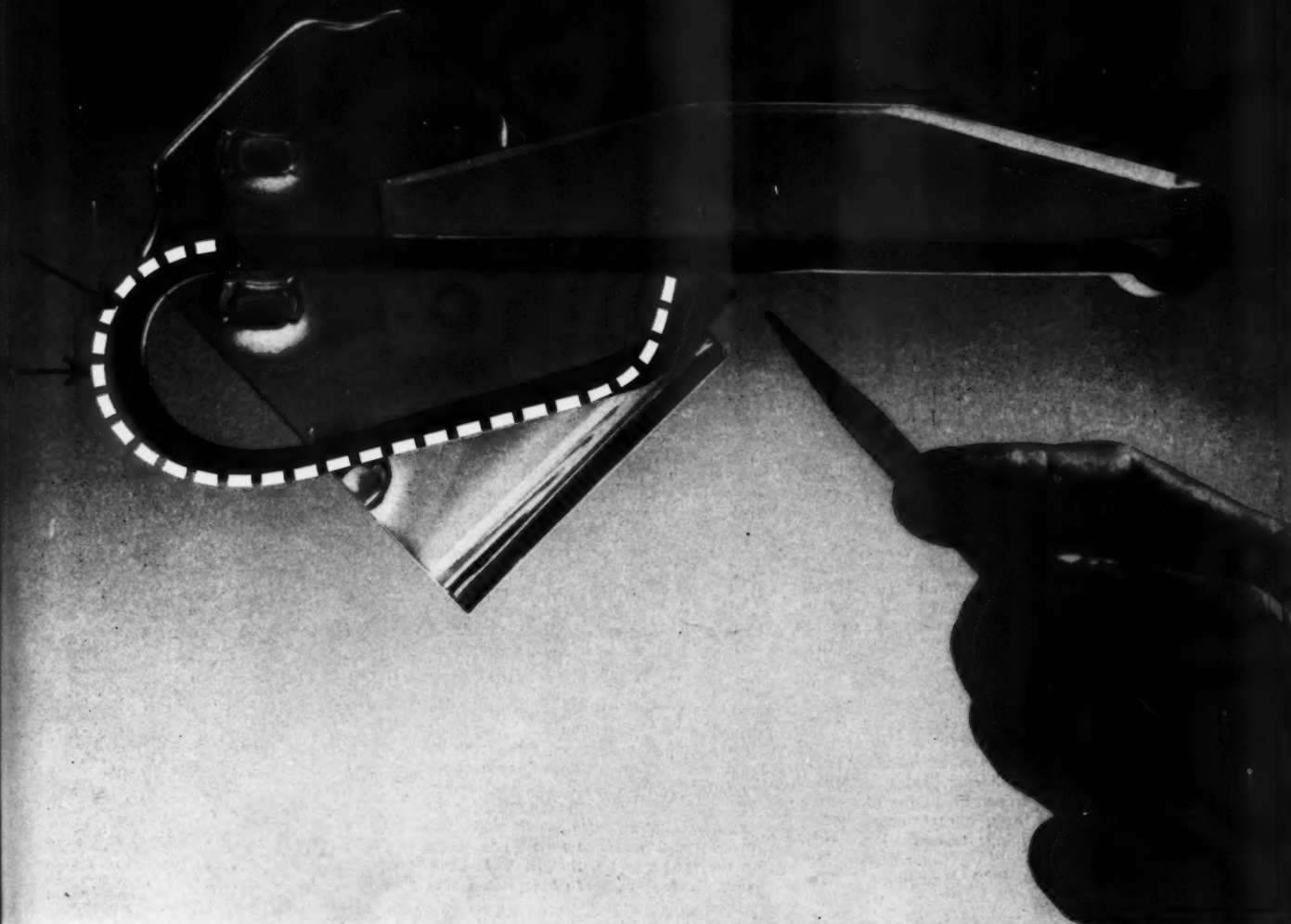
handle with longitudinal ridgings for firm grip. Throttle valve seats in steel bushings are made made of stainless steel to prevent rusting.

All throttle types have a steel reducer bushing for hose connections. The grip type also has an automatic mist type lubricator. *Thor Power Tool Company, Dept. RTS, Aurora, Ill.*



LIGHTWEIGHT AC-DC CONCRETE VIBRATOR

A COMPACT, lightweight ac-dc electric concrete vibrator—weighing only 33 lb—has been announced. The vibrator can be easily operated by one man, according to the manufacturer. Two vibrating heads— $\frac{1}{2}$ in and 1 in. in diameter—are available for this unit to adapt it for work around reinforcing bars, spreaders, and in reinforced concrete forms too small for large vibrators. The 115-volt 8-amp ac-dc series motor runs at 9,000–7,500 rpm full load. The 1-in head is equipped with a dual variable eccentric that can be adjusted to obtain the exact vibration characteristics needed for the most effective placement of the concrete mix. The unit is available with 5-ft and 10-ft lengths



NEW BULLDOG CUTS INSTALLATION TIME IN HALF

Broad, Flat Tie-Bearing Surface and 25% Greater Holding Power Features Retained

Now, it takes one or two hammer blows to install a new BULLDOG rail anchor . . . half the previous time and effort.

To accomplish this significant time and cost savings for rail anchor users, True Temper engineers have reshaped BULLDOG's anchor spring, as shown.

First, the loop in the spring has been flattened. This raises the point (A) where the hammer strikes the spring and results in a straighter, more direct path between the striking point and the end of the spring which engages the rail flange. Old design (dotted white line) allowed much of the striking force (B) to travel down and around the wider loop.

Next, the new design allows the spring to move within the clamp with less friction, and is angled to "ride" over clamp base (at point indicated by pencil) thus minimizing "pop back" during installation.

With less pounding needed for installation, the new BULLDOG will not only last longer but install more accurately.

Why not see for yourself how fast, easily, accurately BULLDOG anchors can be installed? Contact your True Temper representative now for a short, convincing demonstration. True Temper Corporation, Railway Appliances Division, 1623 Euclid Avenue, Cleveland 15, Ohio.

Other True Temper Railway Products . . .

BULLDOG Ballast Forks, Weed Cutters, BULLDOG Shovels, BULLDOG Safety Rail Forks, Hammers, Sledges, BULLDOG Scythes.

TRUE TEMPER



BULLDOG

RAIL ANCHORS

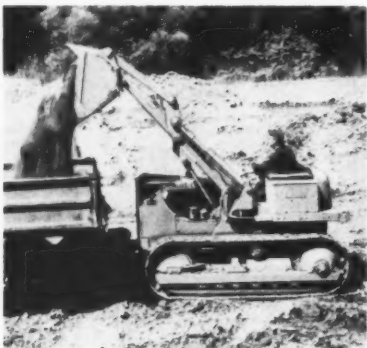
YOU CAN LOOK TO



FOR LEADERSHIP

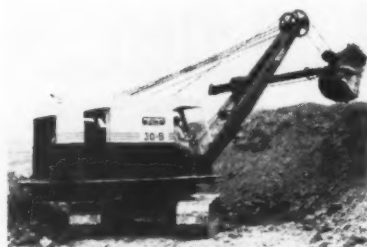
New Products (Cont'd)

of neoprene-covered flexible shaft. It can be operated on commercial current or from a portable generator. *Homelite, Dept. RTS, Port Chester, N. Y.*



1 1/2-CU YD CAPACITY TRACTOR SHOVEL

THE HD-6G TRACTOR SHOVEL, featuring a 1 1/2-cu yd capacity general purpose bucket, has recently been made available. It is powered by a four-cylinder diesel engine. Partial specifications of the shovel are as follows: weight, 19,600 lb; drawbar horsepower, 45 hp; clutch steering; 10 ft 4 in turning radius; 24-volt electric starting; front-mounted hydraulic pump; and a lifting force of up to 11,200 lb. Special equipment available for the HD-6G includes: rock bucket; light materials bucket; angle dozer blades; bulldozer blades; lift forks; crane hooks; trench hoes; tine fork; drag bucket; rock fork; bucket teeth; ripper; and rear piping take-off kit. *Allis-Chalmers Mfg. Co., Construction Machinery, Dept. RTS, Milwaukee 1, Wis.*



CRAWLER-MOUNTED CRANE-EXCAVATOR

A COMPLETELY new crane-excavator in the 1-yd class is being introduced this month. Designated the Model 30-B, the machine is readily convertible to shovel, dragline, clamshell, crane and dragshovel applications. It is offered with five sizes of crawler mountings, and as a carrier-mounted transit crane rated at 35 tons. Main operating functions of the machine are air controlled. According to the manu-

facturer, proper graduation of air pressure gives the operator "full-feel" over his control levers. Air-control functions include hoist clutch, crowd and retract or drag clutches, swing and propel clutches, steering jaw clutches, digging brakes, swing brake and dipper trip.

The 30-B is available with diesel engine with either direct or torque converter drive, gasoline engine with direct drive, or electric motor. The transit crane is offered with gasoline engine with direct drive or electric motor. A diesel engine with either direct drive or torque converter drive is available as optional equipment.

The machine has a rigid cast-steel revolving frame. As a crane the 30-B will handle booms up to 100 ft in length plus 10, 20 or 30-ft jibs. The transit crane handles booms up to 130 ft long or a 110-ft boom with a 30-ft jib. Booms furnished with the crane are of open throat construction. Boom hoist is independent of all other functions and boom angle can be changed while the machine is swinging or propelling—while the load is being hoisted or lowered.

As a shovel the 30-B has a newly designed dipper—a single unit, inside rectangular-dipper handle and large diameter boom point sheaves. The dragshovel has a cambered boom with handle attaching to rear of dipper and a telescopic strut on the auxiliary A-frame to prevent "kicking back" when working on steep grades.

Other features include a remote controlled lubricating device, which is mounted on the A-frame convenient for lubricating the swing rack gear and pinion.

Available as extra equipment for the 30-B crawler: Independent "propel"; a third drum and cat head which can be used with either standard propel or independent propel; and hoist-load lowering control which can be obtained for the crane, dragline and clamshell. Hoist-load lowering control is standard equipment on the transit crane. *Bucyrus Erie Company, Dept. RTS, South Milwaukee, Wis.*



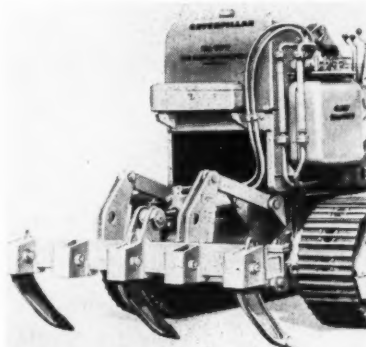
TORQUE CONVERTER MOTOR GRADER

A MOTOR GRADER with a torque-converter drive has been announced. Designated as the Adams Power-Flow 660, the unit has basically the same design features as the manufacturer's standard "660" model with the additional operational advantages of a torque converter drive train plus a 27 per cent increase in engine power.

The grader incorporates a 190-hp diesel power plant with a single-stage torque converter and four-range constant range transmission. The drive system is said to provide the equivalent of an infinite number of gear ratios which adjust automatically to variations in load requirement.

An exclusive feature which is said to contribute to the speed and ease of handling of the new grader is a mechanism which allows the operator to make changes in travel from forward to reverse, and vice versa, without hand shifting. According to the designers, this simple, high-speed system for changing direction will prove a distinct advantage in shuttle work on heavy construction projects, shoulder sloping, and bucking snow drifts, where quick machine co-ordination is so important.

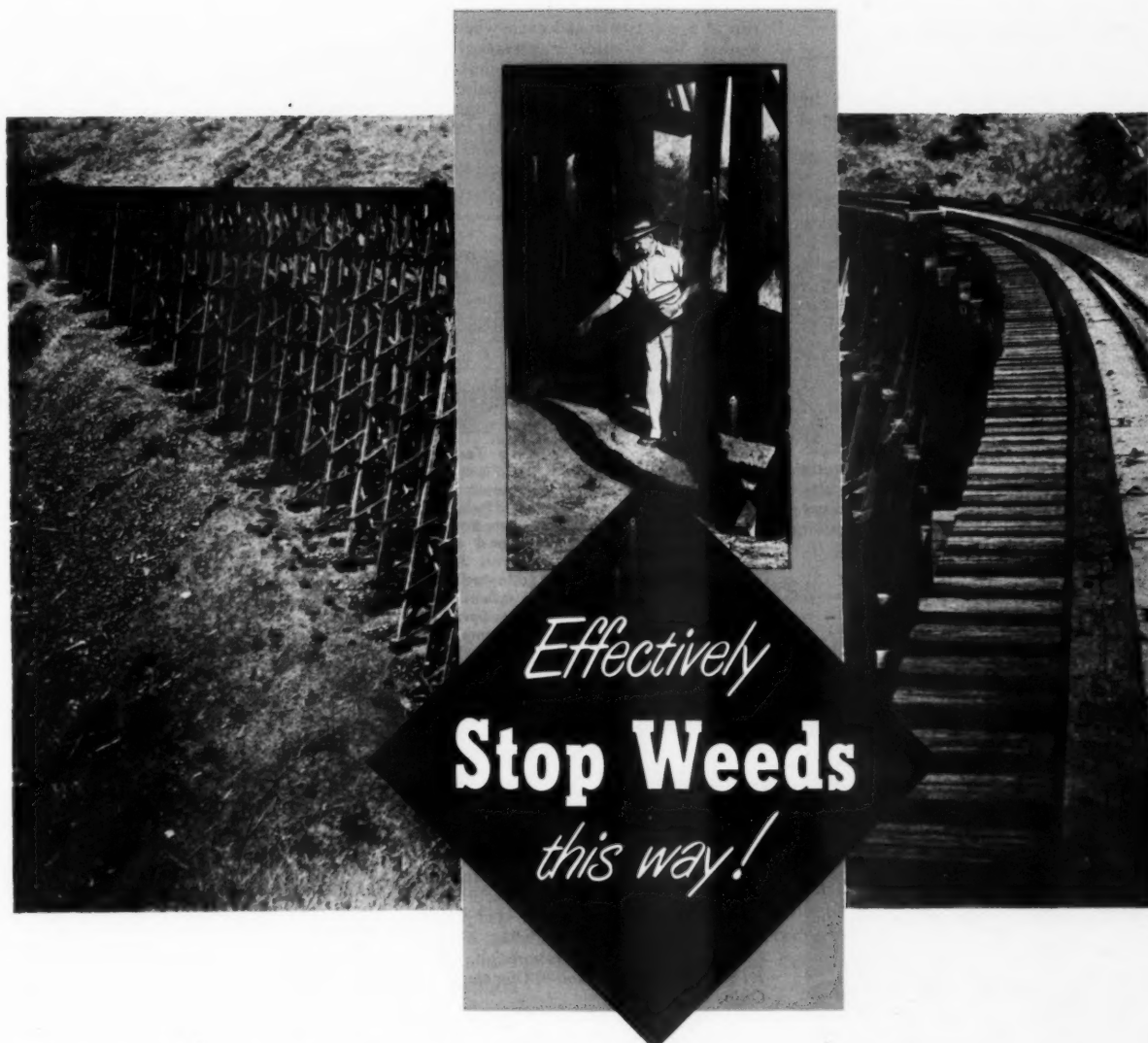
The new grader also incorporates a tail shaft governor which automatically adjusts engine speed. The operator can set the speed at which he chooses to work by hand throttle or foot accelerator, and then forget further manual throttle manipulation. Features such as power steering, rubber engine mounting, final drive, foot accelerator, moldboard and accessory options are identical with those available for the "660" standard transmission machine. *LeTourneau-Westinghouse Co., Dept. RTS, Peoria, Ill.*



THE NO. 6 RIPPER available for application to the Caterpillar D6 Tractor or Caterpillar No. 977 Traxcavator. Provision is made for the installation of a maximum of five ripping teeth.

TWO NEW TRACTOR-MOUNTED RIPPERS

DESIGNED TO SPEED bulldozing and loading operations, two new tractor-mounted rippers have been added to the Caterpillar line of products. The largest of the rippers, designated as the No. 6 ripper, is designed for use on the D6 tractor and No. 977 Traxcavator. The smaller model, known as the No. 4 ripper, is designed for use on the No. 955 Traxcavator. The rippers, when mounted on the Traxcavators, are operated by standard hydraulic controls by making use of a separate valve and control lever mounted on the hydraulic tank. When the No. 6 ripper is used with the D6



Your best defense against weeds on tough terrain... **Concentrated BORASCU**®



As a weed killer for areas where bare ground is essential to safety from wildfire, you'll want to do as most roads do...choose Concentrated BORASCU. This weed killer is the most convenient sort...there is nothing to mix; no water to haul. It is readily applied wherever a man can walk...all he needs is a pail and a few sacks of BORASCU. Compare this to weed-cutting and figure the savings.

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MANUFACTURERS OF FAMOUS "20 MULE TEAM" PACKAGE PRODUCTS



New Products (Cont'd)

tractor, it is hydraulically operated by the No. 46 or No. 44 hydraulic control and a separate hydraulic cylinder.

Three alloy steel teeth with replaceable tips are normally installed, but provision has been made for the installation of two additional teeth, should they be desired. The new rippers are rugged enough to permit the full power of the tractor to be absorbed by one tooth at maximum penetration, according to the manufacturer. When the ripper is fully raised, sufficient clearance is obtained to permit climbing a 30-deg ramp without striking the ground with the ripper teeth. The manufacturer points out that a simple method of ripping directly to the edge of a vertical wall or bank is provided by installing the ripper teeth backward and ripping while backing up. Points of the new rippers are interchangeable with those used on the Traxcavator bucket. *Caterpillar Tractor Company, Dept. RTS, Peoria, Ill.*



HIGH-CYCLE CONCRETE VIBRATOR

A HIGH-CYCLE vibrator, which operates from a carryable generator that can be placed on the ground or any convenient spot within a 400-ft radius, is now available. The unit operates at a constant 10,000 rpm and will handle from 30 to 40 cu yd of 2-in slump concrete per hour. For working in deep forms, 7-ft and 10-ft extension hoses can be quickly connected. The unit is provided with neoprene covered handling hose and incorporates construction which, it is said, will eliminate many maintenance costs, inasmuch as no brushes or commutators are included. The unit is protected from overheating and the motor is designed to

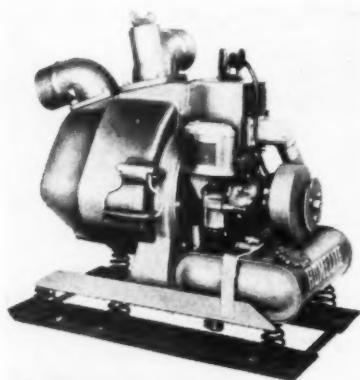
run at a constant speed even when fully loaded. The vibrator is powered by the manufacturer's 2500-watt Model 24HY dual-output generator, which also supplies 110-volt dc current for operating other standard universal electric tools and floodlights. Generator weight is 130 lb. *Homelite, Dept. RTS, Port Chester, N. Y.*



IMPROVEMENT made in True Temper's Bulldog rail anchor: Spring loop has been flattened to raise the point where hammer strikes the spring (Point A), resulting in a more direct path between the striking point and the end of the spring which engages the rail flange. Old design (dotted line) allowed much of the striking force (B) to travel down and around the wider loop. Spring is angled to "ride" over the clamp base (indicated by pencil).

IMPROVED DESIGN RAIL ANCHOR

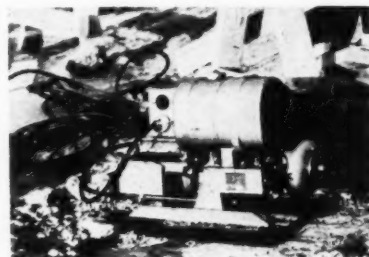
A DESIGN CHANGE in the contour of the spring of the Bulldog rail anchor enables it to lock in place, according to the manufacturer, with only one or two blows. It is claimed that time costs of anchor application can be cut in half. The new design also allows the spring to move within the clamps with less friction and is angled to "ride" over the clamp base, minimizing "pop back" during installation. *True Temper Corporation, Dept. RTS, 1623 Euclid Avenue, Cleveland 15, Ohio.*



NEW CENTRIFUGAL PRESSURE PUMP

THE MODEL 24S3-1P high-volume pressure pump has been announced, featuring a capacity range of 55 gpm at 70 psi to 205 gpm at open discharge. Weighing 107 lb, the new pump is self-priming and, the manufacturer claims, will develop

pressure in 15 sec at 5-ft suction lift and 25 sec at a 15-ft suction lift. It has a guaranteed suction lift of 28 ft, a total head of 185 ft, including friction, and comes equipped with 3-in suction and discharge fittings. The new pump mounts directly on the crankshaft of the manufacturer's single-cylinder, air-cooled, two-cycle gasoline engine. It incorporates a closed-type impeller designed with large clearances to permit operation in muddy water. Construction is of long-wearing cast iron. *Homelite, Dept. RTS, Port Chester, N. Y.*



IDLE CONTROL FOR ELECTRIC GENERATOR

A COMPLETELY automatic idle control accessory for the manufacturer's model 35A115 generator has recently been announced. It is claimed that the electro-mechanical control instantly and automatically brings the generator from idle speed to full speed when current is drawn and returns it to idle speed when the power is no longer required. In this manner, the generator runs on full speed only when power is actually needed, thus reducing engine wear and fuel consumption, and increasing service life. The 90-lb, 150-watt, 115-volt, ac generator features close voltage control and overload capacity to assure peak performance from electric tools and other electric equipment at all times, says the manufacturer. *Homelite, Dept. RTS, Port Chester, N. Y.*

SPRAY ENGINE STARTING FLUID

PACKAGED in a pressurized-type can, a spray starting fluid is now available for starting both diesel and gasoline engines under adverse conditions such as extreme cold, or abnormally high humidity. According to the manufacturer, two years of research were spent in developing a suitable spray propellant to enable the starting fluid to be packaged in the new type can.

The starting fluid is a high ether content base product containing a lubricant to prevent "dry start," and a corrosion inhibitor to prevent corrosion. In application, the fluid is sprayed into the air cleaner or into the air-intake manifold, while the engine is being cranked. Case histories, available from the manufacturer upon request, cite instances where entire days were spent in trying to start construction machinery in below-zero tem-



Breaking out and handling a heavy load of ties calls for beef and muscle. The HD-11G has plenty of both — 111 net engine hp and 35,400 lb of properly distributed weight.

Practical way to rip up, load old ties:

USE ALLIS-CHALMERS HD-11G TRACTOR SHOVEL WITH LIFT TONGS

Modernizing the New York Central Railroad's East Broadway Classification Yards, Buffalo, N.Y., involves tearing up about 50 miles of track in an area of approximately three square miles and replacing it with about 70 miles of new track.

George E. Detzel, Cincinnati, Ohio, contractor, chose an Allis-Chalmers HD-11G with lift tongs to rip up old ties. His choice has proved to be excellent. The HD-11G uproots 20 to 25 firmly imbedded ties at a pass — and makes the job look easy. Then it loads them onto trucks — a load of 50 to 60 in five minutes. Ties weigh from 200 to 600 lb depending on moisture content.

There are about 150,000 ties 6 in. x 8 in. x 8 ft 6 in. to be removed, as well as another 6,000 switch ties ranging in

length up to 16 ft. In addition to removing these, the tractor shovel also is called upon to snake out old rails from areas that are inaccessible to the cranes used for this work, and load them to trucks. At the beginning of the project, the HD-11G also stockpiled ties, 60 ties per pile, and later loaded these onto trucks for distribution along the new roadbed.

Get complete information about the Allis-Chalmers HD-11G tractor shovel and its many-job attachments, including 2¼-yd regular and 3¾-yd light materials buckets, other special buckets, the lift tongs shown here, as well as bulldozer blades, crane hook, rock fork and rear-mounted ripper.

See your Allis-Chalmers construction machinery dealer or write direct.

TRANSPORTATION DEPARTMENT, TRACTOR GROUP, MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS



The tractor shovel also is used for gathering and picking up rails, first pushing them along into piles.

Rails are easily picked up and carried anywhere. The HD-11G has excellent stability, travels over any terrain.

The versatile HD-11G is called upon to stockpile both ties and rails, and to load them to trucks and semi's.



The Allis-Chalmers HD-11G tractor shovel opens its tongs wide for a bite of 20 to 25 firmly imbedded ties.



Lower lip of tongs is powerfully forced along underneath ties with the HD-11G's up to 26,910 lb of maximum force.



The HD-11G with lift tongs has a recommended lifting capacity of 7,000 lb, but actually will lift up to 15,000 lb. It has a clamping force of 21,000 lb.



With precise hydraulic control, the ties are accurately placed on the truck. The HD-11G has a stacking height, under the fork, of 11 ft 7 in. The dumping angle at full raise is 45 degrees.



New Products (Cont'd)



peratures, whereas a single application of the spray starting fluid was said to start the engines in this equipment in a matter of only a few seconds.

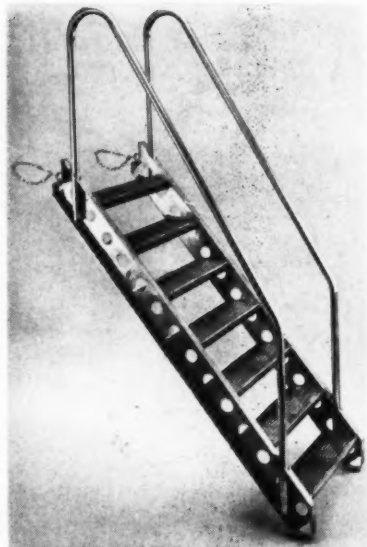
The starting fluid is said to be applicable to all forms of railway maintenance equipment from small gasoline-engine-operated generators to large construction equipment. *Spray Products Corporation, Dept. RTS, P.O. Box 584, Camden 1, N. J.*

ALUMINUM STAIRWAY FOR CAMP CARS

An all-metal portable stairway for use in connection with railroad camp cars is now available in aluminum. When originally introduced several months ago this stairway was made of steel. Two types were offered—one with six steps and the other with seven steps. Both types are now available in either steel or aluminum. The steel stairway is made of hot galvanized material and has aluminum hand rails.

The side rails of the stairway are of formed channels, and the treads are also of channels and are perforated to give a non-skid effect.

Links of chain are provided at the upper end of each side channel so that the stairway may be fastened in place



when in position for use. A number of railroads are already using the stairway as a means of providing safe access to bunk cars, office cars, kitchen cars and diners. *Research Engineering Associates, Dept. RTS, 1222 Greenleaf St., Evanston, Ill.*

What's the Answer

(Continued from page 44)

useful life; that only those crossties are replaced that will not support the rails and maintain gage; that condition rather than age of the crossties is the determining factor; and, finally, that the type, species and age of crossties being considered for replacement are not unusual. Such conditions should govern in "spot" renewals. When they do—in a track where the general condition is satisfactory and the standard of maintenance is normal—the renewals would not be heavy, and it should not be necessary to surface the track immediately afterwards. It is taken for granted that the new crossties are thoroughly tamped and the cross-level and line are taken care of each day as the crosstie renewal work progresses.

There is a growing tendency towards cycle maintenance and the conditions described in the foregoing would be found, if at all, in one of the intervening years. Good judgment on the part of the supervisor of track and track foreman, with the aid and advice of the crosstie inspector, will govern when and how the work is done.

Local conditions affect the life span of crossties. Climate, drainage, type of ballast, nature of subgrade,

alignment, tie plates, grades and curves, anchorage, and rail and joint conditions are all causes for or against surfacing the track after "spot" renewal of crossties.

Speed and class of trains, traffic density, labor and machinery costs and the economic benefits derived from ownership and use are matters for consideration. Mechanized gangs for constructive track-maintenance work, with small crews for chores and inspection, leave little labor for "spot" renewals on heavy-traffic, high-speed, stone or slag-ballasted main tracks, except where it is intended to surface out of face. Under such circumstances, the crosstie replacements are reasonably heavy and if the track is not surfaced out of face the new crossties, even though thoroughly tamped when inserted, begin to swing and the track becomes choppy and rough.

The surfacing work should be done about sixty days after the crossties are installed, providing time for tie plates to become tightly set. Where labor is available, such "dig-in" replacement is justified in keeping on-track tamping machines operating at capacity, avoiding crosstie renewals "under the jacks," and permitting the continuous operation of tampers with crews of seven or eight men.

On many districts of most railroads, crossties of any size, properly dug in, plated, spiked and tamped to proper bearing without disturbing the general surface of the track should not require out-of-face surfacing afterwards. In the north new crossties must be re-tamped sometime before freezing weather. Therefore "spot" crosstie renewals should be made as early each season as practicable. If it is possible to keep up with crosstie replacements and not permit crosstie needs to accumulate, this practice can be followed.

In chat and gravel ballast on light-traffic main tracks or on secondary lines it is not necessary to follow up crossties renewals with out-of-face surfacing. Where crossties are applied early in the year, and when there is sufficient moisture in the ballast to keep it from "running in" when the track is slightly elevated to permit pulling out plate-cut crossties, crosstie application is not a controlling factor as to when or where out-of-face surfacing should be done.

The cost of installing a new crosstie in place of a worn-out one on my railroad by hand during surfacing and digging in ahead of surfacing ranges from \$1.37 to \$2.32 for various types of ballast and methods of performing the work.

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RAILWAY TRACK and STRUCTURES

JANUARY, 1957

53



THE MONTH'S NEWS...

... among railway men—the associations—the suppliers

Changes in Railway Personnel

Engineering

W. K. Kearns, supervisor of track on the Pennsylvania at Logansport, Ind., has been promoted to construction engineer on the Pittsburgh & West Virginia. Mr. Kearns, a graduate of the Case Institute of Technology, joined the Pennsylvania in 1951 as a junior engineer at Pittsburgh. He served as assistant supervisor



W. K. Kearns

of track on the PRR at Chicago and New York before being named supervisor at Logansport.

Thomas O. Manion, whose promotion to district engineer on the Missouri Pacific at Kansas City, Mo., was recently announced (*RT&S*, Oct. p. 66), joined the MP in July 1917 as a section laborer. He attended the United States Military



Thomas O. Manion

Academy from 1924 to 1926, returning to the MP later in the latter year as an extra gang timekeeper. He served as instrumentman, assistant engineer, and

roadmaster until May 1, 1943, when he was promoted to division engineer at Little Rock, Ark. Mr. Manion was serving in this latter position at the time of his recent promotion.

L. E. Peterson, division engineer, and **J. C. E. McClure**, assistant division engineer, both on the Southern Pacific at Los Angeles, recently retired.

W. D. Wood has been named assistant bridge engineer on the Chesapeake & Ohio with headquarters at Richmond, Va.

K. E. Bomar, assistant supervisor of track on the Chesapeake & Ohio, at Clifton Forge, Va., has been promoted to assistant division engineer on the Huntington division, with headquarters at Huntington, W. Va.

John G. Sutherland, whose promotion to engineer of buildings on the Canadian Pacific at Montreal was recently announced (*RT&S*, Oct., p. 68), was born September 8, 1907, at Toronto. He graduated from the University of Toronto in 1930 and served as a rodman for the CPR until May 3, 1937, when he was promoted to assistant engineer, at Toronto. He served as division engineer from 1938 until January 1, 1944, when he was promoted to assistant engineer of



John G. Sutherland

track with headquarters at Montreal. On February 1, 1946, he was promoted to assistant engineer of buildings at Montreal—the position he held prior to his recent promotion.

Laurence H. Laffoley, whose appointment as engineer of hotels on the Canadian Pacific at Montreal was recently announced (*RT&S*, Oct., p. 68), was born

March 14, 1894, at Montreal. While attending McGill University, he worked summers as a draftsman for the CPR at Montreal. He received his Bachelor of Science degree from McGill in 1916 and thereupon served with the Canadian Engineers and the Royal Flying Corps overseas until 1918 when he returned to the CPR as a draftsman. He was named senior draftsman in 1920 and in 1923 was promoted to assistant engineer. In 1936, Mr. Laffoley was promoted to assistant engineer of buildings at Montreal, which position he held until 1946 when he was promoted engineer of buildings—the position he held prior to his recent appointment.

J. S. Felton, Jr., whose promotion to division engineer on the Norfolk & Western with headquarters at Norfolk, Va., was recently announced (*RT&S*, Oct., p. 66), was born March 11, 1902, in Gates County, N. C. He graduated from the Virginia Polytechnic Institute in 1924, joining the Norfolk & Western at that time and serving in various positions on survey parties in Virginia, West Virginia, and North Carolina. In May 1947 he was promoted to resident engineer at Norfolk and in December 1948.



J. S. Felton, Jr.

was named crossing engineer with headquarters at Roanoke, Va. He was appointed assistant engineer in November 1955—the position he held prior to his recent promotion.

Ray M. Smith, whose retirement as district engineer on the Missouri Pacific at Kansas City was recently announced (*RT&S*, Oct., p. 6), was born December 20, 1889, at Imperial, Neb. He entered the service of the Missouri Pacific July 1, 1912, upon graduation from the University of Kansas. He served as engineering assistant at various locations until 1917. From 1917 until 1920 he served as as-

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- Ratchet Lowering and Standard Speed Bridge Jacks
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RE-MO-TOOL UTH-A-TOOL JENNY ROL-TOE

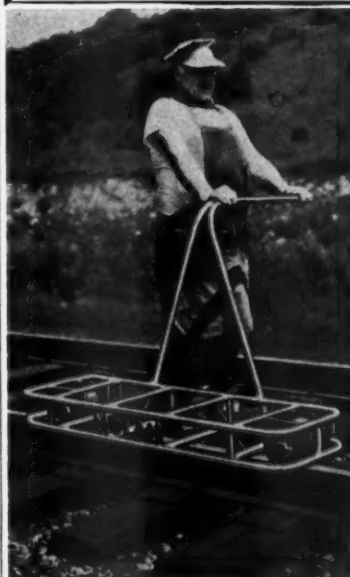
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The operator's handle is conveniently placed to assure correct balance and full control of heavy loads. The Inspector's model has a detachable handle to permit carrying the entire unit in a truck or car.

STANDARD DOLLY—

Price \$69.50
Length 50 1/2"—Width 15 1/2"
Ht. above rail. 6 1/2"—Wt. 88 lb.

INSPECTOR'S DOLLY

Price \$65.00
Ht. above rail. 6"—Wt. 60 lb.

Send your order now!
Write for complete catalog of Nolan railroad equipment and supplies.



THE NOLAN COMPANY

166 Pennsylvania Street, BOWERSTON, OHIO

Railway Personnel (Cont'd)

sistant engineer at Coffeyville, Kan., Osawatomie, Fall City, Neb., and St. Louis, Mo. In 1920 he was promoted to assistant division engineer at Hoisington, Kan., and in 1926 was named division engineer at Van Buren, Ark. He served in that capacity also at Wynne, Ark., until 1929, when he was promoted to assistant engineer maintenance of way with headquarters at St. Louis. From 1930 until 1933 he served as division engineer at Coffeyville and, in the latter year, was named assistant superintendent



Roy M. Smith

ent at Pueblo, Colo. In 1939 he was named division engineer at Poplar Bluff, Mo., and in 1941 was promoted to assistant superintendent at Wynne. From 1944 until 1951, Mr. Smith served as division engineer at Wichita, Kan. In 1951 he was promoted to district engineer at Kansas City—the position he held at the time of his recent retirement.

Paul G. Martin, whose promotion to district engineer—Eastern district—on the Union Pacific at Omaha, Neb., was recently announced (*RT&S*, Nov., p. 66), was born on June 18, 1903, at Kansas



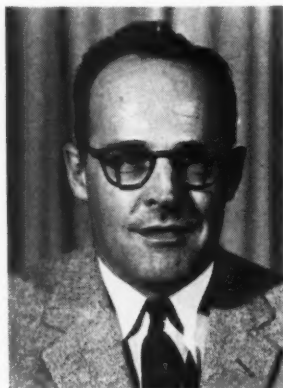
Paul G. Martin

City, Mo. After receiving his education from the International Correspondence Schools, he entered railway service in January 1920 with the Union Pacific. After serving in various capacities in the

road's engineering department, Mr. Martin was named division engineer at Kansas City—the position he held at the time of his recent promotion.

William L. Mogle, whose promotion to engineer of appropriations on the Southern Pacific at San Francisco was recently announced (*RT&S*, Nov., p. 66), was born May 26, 1895, at Los Angeles. He attended the University of California and entered railway service on May 10, 1920, with the Southern Pacific as a cost analyst at Oakland Pier, Cal. After serving as draftsman, instrumentman, assistant engineer, office engineer, and contract agent, Mr. Mogle was named assistant engineer of appropriations in 1945, the position he held at the time of his recent promotion.

Warren R. Tyler, whose promotion to division engineer on the Union Pacific at Kansas City, Mo., was recently announced (*RT&S*, Nov., p. 66), was born March 8, 1917, at Salt Lake City, Utah. Upon graduation from the engineering school of the University of Utah, in 1941 he joined the Union Pacific as a draftsman at Pocatello, Ida. He was promoted to assistant engineer in 1943 and, in 1948, was named bridge inspector. From 1951 until 1954 he served as bridge in-



Warren R. Tyler

spector and assistant engineer at various locations. In 1954 he was named resident engineer at Council Bluffs, Iowa, the position he held at the time of his recent promotion.

Leonard E. Bates, whose promotion to assistant chief engineer on the Atlantic Coast Line at Wilmington, N. C., was recently announced (*RT&S*, Nov., p. 66), was born November 18, 1903, at Waycross, Ga. Upon graduation from the Georgia School of Technology, he entered railway service September 1, 1925, as a rodman on the ACL at Waycross. After serving as transitman at that location, he was promoted to assistant engineer at Wilmington on September 21, 1928. On July 1, 1929, he was named chief clerk to the auditor of construction and on January 1, 1934, was named junior engineer at Jacksonville, Fla. On January 1, 1937, he was made assistant engineer at Wilmington, and on October 1, 1940, was promoted to senior assistant engineer with headquarters at Savannah,

Ga. On December 1, 1943, Mr. Bates was promoted to division engineer at Jacksonville, and on February 15, 1946, was named roadmaster at Wilmington. He was advanced to engineer maintenance of way at Jacksonville on March 24, 1947,



Leonard E. Bates

and on July 1, 1951, was promoted to assistant to chief engineer, the position he held at the time of his recent promotion.

Track

G. W. Guinn, Jr., assistant supervisor of track on the Richmond, Fredericksburg & Potomac, District No. 1, at Richmond, Va., has been promoted to supervisor of track, District No. 3, Potomac yard. Mr. Guinn succeeds **T. DeW. Styles** who has been named general yardmaster at Richmond yard.

Leon F. Woodlock, whose promotion to roadmaster on the St. Louis-San Francisco at Ft. Scott, Kan., was recently announced (*RT&S*, Nov., p. 70), was born October 14, 1926, at St. Louis, Mo. A graduate civil engineer from the Missouri School of Mines, Mr. Woodlock entered railway service August 15, 1951, as a rodman on the Frisco at Ft. Scott. On June 1, 1952, he was appointed student apprentice at Ft. Smith, Ark., serving in that capacity also at Amory, Miss., until June 1, 1954, when he was named student supervisor at the latter location. On December 1, 1954, he was promoted to assistant roadmaster at Oklahoma City, Okla., the position he held at the time of his recent promotion.

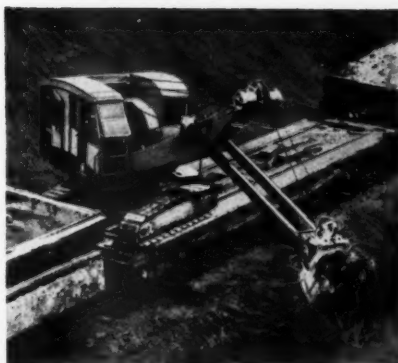
James Chester Waldrop, whose promotion to supervisor of track on the Central of Georgia at Macon, Ga., was recently announced (*RT&S*, Nov., p. 70), was born May 18, 1917, at Milner, Ga. He attended the Gordon Military College and on August 9, 1939, joined the Central of Georgia as an extra gang laborer on the Macon division. In February 1943 he was promoted to extra gang foreman and on December 1, 1955, was promoted to apprentice track supervisor—the position he held at the time of his recent promotion.

Loyal R. Henderson, general foreman on the Marion division of the Erie at



WORK ON OR OFF-TRACK with Koehring self-propelled RailAid®. It travels at 20 m.p.h. rail speed, gets on or off-track in 10 minutes. Lifts 6.9 tons on car, 8.9 tons on ground, converts to clamshell, drag-line, piledriver, 1/2-yd. shovel, hoe.

GET MORE WORK CAPACITY on work trains or independent off-track operation: Check all 5 sizes of Koehring heavy-duty excavators, with standard attachments for any construction, maintenance, and material-handling applications.

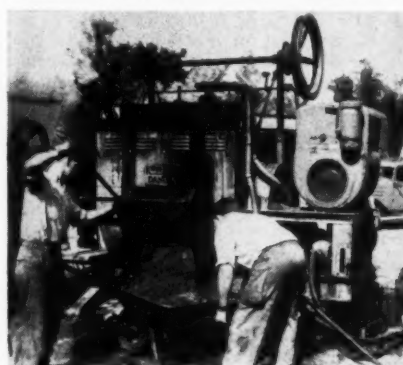
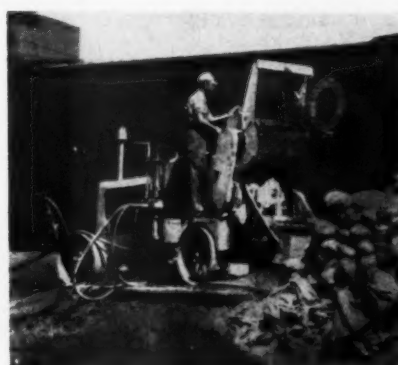


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LOAD BALLAST, RIP-RAP from track-side pits and quarries into rail cars with Koehring Dumptors®. This 6-yard hauler has one-second gravity-dump (no body-hoist maintenance), 24% gradeability — has same speeds forward and reverse.

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MAINTAIN SMOOTH CROSSINGS, pave platforms, parking areas, walks with Kwik-Mix bituminous mixer. Sizes: 10 and 14 cu. ft. Mobile rubber-tire mounting. Adaptable as stationary central-mix plant, skid-mounted on platform.

MECHANIZE MATERIAL-HANDLING with Kwik-Mix Moto-Bug®. It's three tools in one — has interchangeable 1/2-ton (6-foot) fork lift, 10 cu. ft. hopper, and 3/4-ton platform. Larger size also available with multiple attachments.



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LOAD, UNLOAD CARS, stockpile materials, clean ditches with Johnson all-welded clamshell buckets. Wide-rehandling, general-purpose, and heavy-duty-digging types. In 10 sizes from 3/8 to 3 cubic yards.



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Railway Personnel (Cont'd)

Hammond, Ind., has been appointed acting track supervisor on the Terminal division with headquarters at Jersey City, N. J. Mr. Henderson succeeds **Joseph H. Duane**, incapacitated due to injury.

Hershel J. Lester, whose promotion to track supervisor on the Central of Georgia at Ft. Valley, Ga., was recently announced (*RT&S*, Nov., p. 70), was born October 30, 1923, at Bowden, Ga. He entered railway service with the CofGa on May 16, 1949, as a laborer and in September 1951 was promoted to assistant foreman. Mr. Lester was named foreman in March 1952 and on November 1, 1955, was promoted to apprentice supervisor, the position he held at the time of his recent promotion.

Bridge & Building

Walter Dilts, general bridge inspector on the Jersey Central, has been appointed supervisor of bridges. **P. R. Ciccolilli**, supervisor of buildings and structures, has been named supervisor of buildings and **Richard A. Eitel**, assistant chief engineer, has been named general bridge inspector. **Frederick Schweizer**, bridge carpenter foreman, has been promoted to supervisor of wharves and docks. **R. W. Bodell**, transitman, has been named assistant master carpenter and bridge inspector.

George F. Lithgow, whose promotion to assistant chief architect on the Canadian National at Montreal was recently announced (*RT&S*, Nov., p. 70), was born June 8, 1897, at Toronto. He attended the Toronto Technical School and the Ontario College of Art and on August 4, 1919, entered railway service with the Canadian Northern at Toronto as an architectural draftsman. He moved



George F. Lithgow

to Montreal at the time of the amalgamation of the Canadian Northern and Grand Trunk in 1923, returning to Toronto later that year as assistant architect on the Central Region of the CNR. He was promoted to regional architect with headquarters at Toronto in 1950—the position he held at the time of his recent promotion.

Association News

Maintenance of Way Club of Chicago

The principal speaker at the January meeting of the club will be A. L. Essman, chief signal engineer of the Burlington Lines. Mr. Essman will discuss new developments in signaling, including automation in classification yards. This meeting will be held on January 28 at the usual place, the Hamilton Hotel, Chicago.

Roadmasters' Association

The selection of chairmen and personnel of the subjects committees to make reports at the 1957 convention has been completed. This work was done at a meeting of the Executive committee held at Chicago on December 3. In addition to routine business, the committee also discussed preliminary plans for this year's convention.

Meetings and Conventions

American Railway Bridge and Building Association—Elise LaChance, Secretary, 431 S. Dearborn street, Chicago 5.

American Railway Engineering Association—Annual Meeting, March 4-6, 1957, Hotel Sheraton Jefferson, St. Louis, Mo. Neal D. Howard, Secretary, 59 E. Van Buren street, Chicago 5.

American Wood-Preservers' Association—Annual Meeting, April 29-May 1, 1957, Conrad Hilton Hotel, Chicago. W. A. Penrose, Secretary-treasurer, 839 Seventeenth street, N. W., Washington 6, D. C.

Bridge and Building Supply Association—L. R. Gurley, Secretary, 201 North Wells street, Chicago 6.

Maintenance of Way Club of Chicago—Next meeting, January 28. S. F. Kosco, Secretary-treasurer, 135 E. 11th Place, Chicago 5.

Metropolitan Maintenance of Way Club—G. Rogers, Secretary-treasurer, 30 Church street, New York.

Mississippi Valley Maintenance of Way Club—R. B. Davis, Secretary-treasurer, Room 1025, Frisco Building, 906 Olive street, St. Louis 1, Mo.

National Railway Appliances Association—J. B. Templeton, Secretary, 1020 So. Central avenue, Chicago 44; Lewis Thomas, Assistant Secretary, 59 East Van Buren street, Chicago 5.

Railway Tie Association—Roy M. Edmonds, Secretary-treasurer, 1221 Locust street, St. Louis 3, Mo.

Roadmasters' and Maintenance of Way Association of America—Elise LaChance, Secretary, 431 S. Dearborn street, Chicago 5.

Track Supply Association—Lewis Thomas, Secretary, 59 E. Van Buren street, Chicago 5.

The next meeting of the Executive Committee will be held at St. Louis on March 4, the first day of the AREA convention. The committee meeting will start at 8.00 am, and will be held at the Sheraton-Jefferson hotel.

Bridge & Building Association

The Executive committee of the Association held a meeting on December 3-4 at the Western Maryland's Cheat River Lodge near Cumberland, Md. The principal item of business was the selection of chairmen and personnel for the subjects committees that will present reports at the 1957 convention.

The next meeting of the Executive committee will be held at 2:00 pm on March 4 in the Frisco building at St. Louis. In line with customary practice this meeting is being scheduled for the first day of the AREA convention, which this year is being held at St. Louis.

American Railway Engineering Association

Planning for the annual convention, to be held March 4-6 at the Sheraton-Jefferson Hotel, St. Louis, has reached the final stages.

These plans include a new special feature—a dinner party to be held on Monday night, March 4. This feature, to be held in the convention hotel, is being sponsored by the Mississippi Valley Maintenance of Way Club. It will be a banquet-style affair, with entertainment and dancing.

When the January issue of the AREA news is mailed to members, it will be accompanied by reservation cards for the use of members in making room accommodations at the four collaborating hotels—the Sheraton-Jefferson, the Statler, the Mayfair and the Lennox.

Because the convention occurs earlier than usual in March, the February and March issues of the AREA News will be consolidated into a special convention issue, which will include a detailed program of the meeting and last minute information regarding it. Registration for the convention will begin on Sunday, March 3.

Five committees of the association have scheduled meetings to be held in January, as follows: Yards and Terminals, at association headquarters, Chicago, January 14; Records and Accounts, at Dallas, Tex., January 16-17; Buildings, at Atlanta, Ga., January 17-18; Maintenance of Way Work Equipment, at Atlanta, January 21-22; and Masonry, at New Orleans, January 28-29.

(Continued on page 61)

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Office Engineer and Assistant Engineer (two positions), desired for progressive Class 1, New England Railroad. Immediate placement for men with proper qualifications. State age, references, experience, education, salary required, when applying. All correspondence confidential. Address Box 57, RAILWAY TRACK and STRUCTURES, 30 Church St., New York 7, N. Y.

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**NOW ELIMINATES SLOW,
COSTLY METHOD**

After the tie has been cut on both sides by the WOOLERY Tie Cutter, the operator of the Tie-end Remover—who follows closely behind so that operators can assist each other in removing machines from track—lifts the center section out with tie tongs.

A double-ended hydraulic cylinder is then lowered into the tie bed. A simple turn of the valve moves these two pistons outward, pushing the tie-ends completely clear of the rail—whether

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Use the WOOLERY TIE-END REMOVER in conjunction with the improved model NU WOOLERY TIE CUTTER! It's the perfect team for greater savings on tie renewals—and gives smoother, safer track, too!

For highest efficiency two Tie Cutters should be used ahead of one Tie End Remover.

The trend toward heavier rail and double shoulder tie plates has made removing tie-ends increasingly difficult. With the WOOLERY Tie-end Remover, this task can now be done in less than a minute by one man with no more effort than that required to turn a valve!

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"R.B.C.C." 5 unit equipment does a thorough ballast conditioning job, cleaning two center ditches or two shoulders or one of each at one trip.

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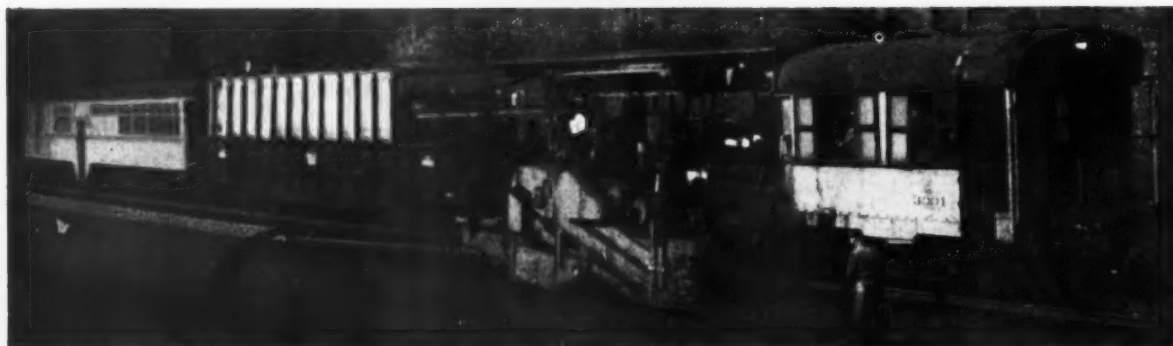


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Association News (Cont'd)

Northwest Maintenance of Way Club

At the January meeting, which will be held on the 24th, the principal speaker will be Leo C. Blanchard, roadmaster on the Milwaukee at Minneapolis. Mr. Blanchard, who is secretary-treasurer of the club, will speak on the subject "Fundamentals of Lining Track." His remarks will be followed by a moving picture showing the latest and most modern methods of lining track by the use of power equipment and optical instruments. The latest methods for lining tangent track by stringlining will also be shown. The program will be designed to be helpful to those who wish to improve their skill at lining, to those whose duties require them to instruct track liners and for those who have a general interest in the subject.

The meeting will be held, as usual, at the Midway Civic Club, 1931 University avenue, St. Paul, Minn.

Supply Trade News

E. S. McCormick, special railroad sales representative for the **Koehring Company**, has been named general sales manager for the firm's Buffalo-Springfield Roller Division, with headquarters at Springfield, Ohio.

Robert L. Knox, and Herman R. Brown have been appointed assistant sales managers for the **Frank T. Hough Company**. Mr. Knox was formerly a district sales representative; Mr. Brown served as manager of the order and distribution section of the firm's sales department.

Effective January 1, the **American Brake Shoe Company** united four of its railroad divisions, including the Ramapo Ajax Division, into a newly created Railroad Products Division.

The new division, in addition to the Ramapo Ajax Division, will include the railroad product facilities of the Brake Shoe & Castings Division, the National Bearing Division, and the Southern Wheel Division. Production, sales and engineering have been combined "for more efficient operation and better utilization of talents, resources and experience to serve the nation's railroads."

Charged with overall responsibility for the new division is **John S. Hutchins**, executive vice-president and director of American Brake Shoe. Mr. Hutchins was formerly president of both Ramapo Ajax and National Bearing Divisions. President of the new Railroad Products Division is **Stephen S. Conway**, a Brake Shoe vice-president, who was serving as president of the Brake Shoe & Castings Division.



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■ **AVOID** expensive replacement jobs. **OSMOSE** special in-place preservative (Pentachlorophenol) treatment can add 25 years useful life to standing timber structures **AT ONLY 5% OF THE REPLACEMENT COST.**

Our exclusive techniques, equipment, specially-trained crews and a patented pentachlorophenol solution (to eliminate fire hazard) make this **BRIDGE MAINTENANCE SERVICE** a "must" in your budget.

HOW OSMOSE BRIDGE-SPRAY SERVICE WORKS

You select the structures (bridges, wharves, etc.) and at no cost to

you Osmose engineers thoroughly examine them. Our quotation covers the cost of the above-ground maintenance treatment, and as a separate item our famous **OSMO-PLASTIC** below-ground piling treatment. Complete data reports come to you at the conclusion of each job.

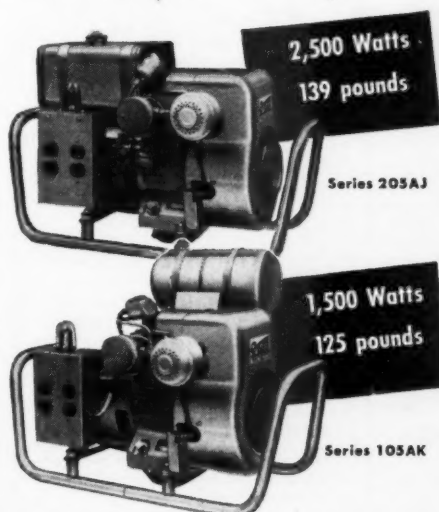
WRITE US for details! See what we have accomplished for the G.M.&O. and others. We can do it for you!

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YOU GET *4-cycle* DEPENDABILITY
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ONAN Electric Plant

These power-packed electric plants give you all the *4-cycle* advantages of quick starting, long life and trouble-free operation... with an amazing weight saving over usual 4-cycle plants. You can carry them easily to any spot... and you can count on them delivering their full rated capacity as long as you need it. Both are single-cylinder, air-cooled... completely equipped and ready to go.

Other models to 50,000 watts.

Write for special folder on lightweight models!

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Supply Trade News (Cont'd)

sion at the time the new setup was put into effect.

Eads Johnson, Jr., formerly president of the Southern Wheel Division, has been named vice-president for sales of the new division. **Roy L. Saulter**, formerly first vice-president of Southern Wheel, becomes vice-president in charge of production. **Raymond A. Frick**, formerly vice-president of the Brake Shoe & Castings Division, has been named assistant vice-president for production. Engineering is headed by **Rosser L. Wilson** as vice-president.

Four product lines will be handled by

the new Railroad Products Division. In addition to the Racor line of track work and specialties, these will include brake shoes, railroad car wheels and bearing products.

Within the new Railroad Products Division, four staff product managers will supervise the lines of products offered by each of the present divisions. **Joseph P. Kleinkort**, Ramapo Ajax vice-president, will manage the Racor line of track work and specialties.

Three regional sales areas have been established. **Sam R. Watkins**, formerly vice-president of the Brake Shoe & Castings and Southern Wheel divisions, has been named head of Eastern Region sales at New York. **Ralph L. Robinson**,

vice-president of Brake Shoe & Castings and Southern Wheel Divisions, will be in charge of Central Region sales at Chicago. **Westley C. Muller**, formerly Ramapo Ajax western sales manager, has been placed in charge of Western Region sales at San Francisco.

Albert T. Metcalf, former electrical engineer of the Anglo-Lautaro Nitrate Corporation of Antofagasta, Chile, has been appointed electrical engineer for the **Nordberg Manufacturing Company** at Milwaukee, Wis. Mr. Metcalf will assist all products engineering, manufacturing and sales departments and will maintain liaison with electrical equipment manufacturers.



*On Track...
Or On a Car-*

BURROS

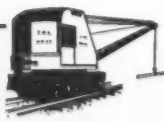
Do More Work!

Burro Cranes are the busiest units on the road because they can work anywhere . . . do virtually anything . . . and do it faster at lower cost. Burro's low overall height and short tail swing permit efficient operation on a flatcar . . . fast travel speeds and powerful draw bar pull give it a wider operating range on the track.

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- Fast travel speeds . . . up to 22 MPH
- Draw bar pull of 7500 lbs. (often eliminates need for work train or locomotive)
- Elevated Boom Heels for working over high sided gondolas
- Short tail swing — will not foul adjoining track
- Low overall height — Burro can be loaded and worked on a standard flatcar.



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Helps From Manufacturers

The following compilation of literature—including pamphlets and data sheets—is offered free to railroad men by manufacturers to the railroad industry. To receive the desired information, write direct to the manufacturer.

POWER DERRICKS. A catalog has recently been published on the Series 6700 "bow-legged" power derrick. The four-page, two-color catalog gives capacities and heights in various working conditions, dimensions, action photographs, and details on the operating features of the new derrick which has an 8000-lb capacity and can be used for handling poles up to 75 ft in length. (Write: **J. H. Holan Corp.**, Dept. RTS, 4100 W. 150th St., Cleveland 11, Ohio)

DIESEL WRECKERS. A new six-page brochure describes the advantages of the application of modern handling and control devices to heavy cranes having capacities of 75 tons to 250 tons. Also described is the manufacturer's multi-purpose crane, a combination machine with a straight boom which can be used for regular purposes. Long enough for use as a bridge derrick, it has pendent pile-driver leads which fold automatically when the boom is lowered for travel—which the machine does under its own power. The bulletin, designated No. 89, also discusses construction and safety factors. (Write: **Orton Crane & Shovel Co.**, Dept. RTS, 608 S. Dearborn St., Chicago 5.)

TRACTOR-COMPRESSORS. Four new "Tractair" case histories have been issued by the manufacturer, bringing to eight the number of such bulletins recently published by the firm on their combination tractor-air compressor. The two-page case histories, printed in three colors and illustrated, describe the machine in use both with and without one of more than a dozen attachments. (Write: **LeRoi Division, Westinghouse Air Brake Company**, Dept. RTS—Sales Promotion, Milwaukee 1, Wis.)

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The simplicity of design of Q and C Guard Rails made in one piece results in economy of labor of installation and maintenance as compared to Guard Rails with separate braces, plates, fillers, bolts and foot guards.



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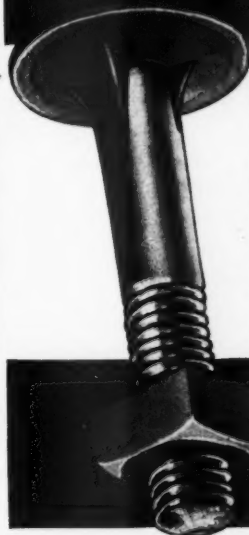
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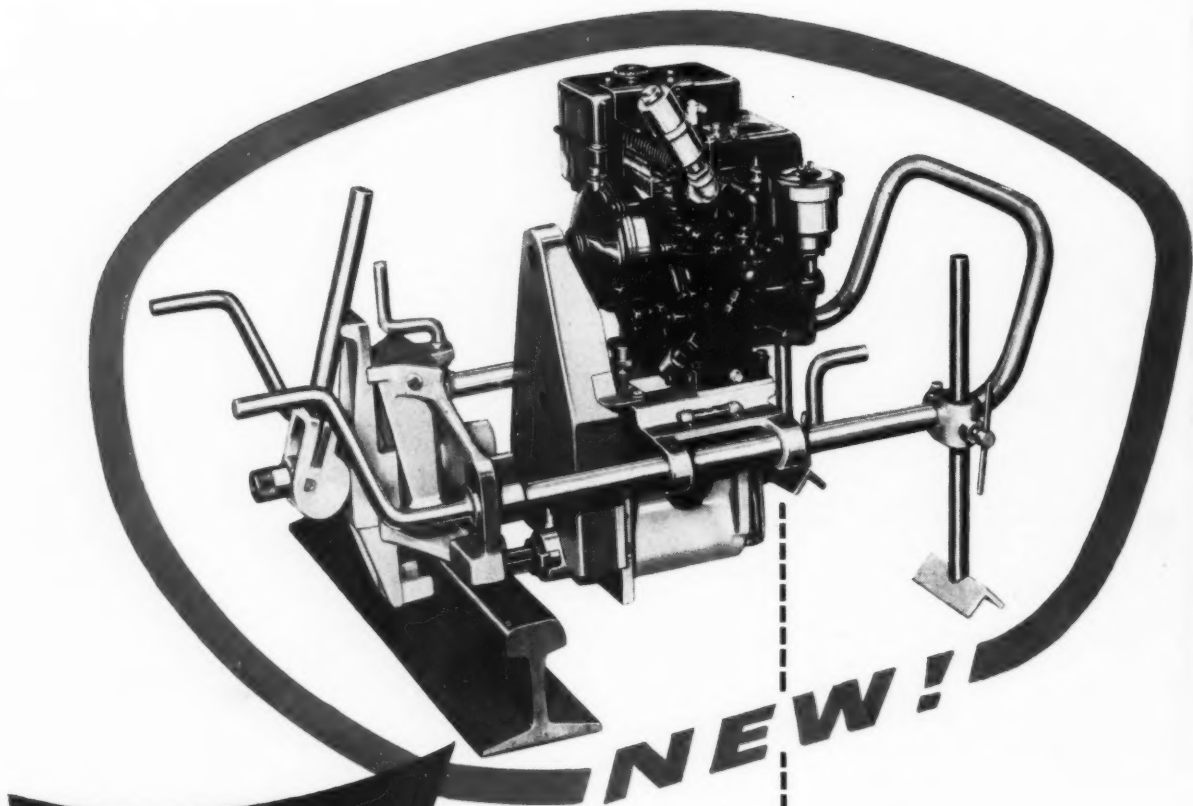
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WITH AUTOMATIC POWER FEED

Here is RACINE'S new Portable RAIL DRILL — completely new simplified design. A precision machine built for rugged in-track service. Once this machine is set up for specific rail size, it will drill hole after hole without further adjustment. Through an exclusive RACINE compensating pressure arrangement, feed of drill varies automatically, depending on sharpness of bit and hardness of rail.

★ **READILY PORTABLE**

Simple quick-acting cam actuated clamp holds machine in position and allows rapid removal of machine from track.

★ **EASY TO HANDLE**

Carrier guard protects mechanism and provides a convenient carrying handle for lifting machine. Weighs only 165 pounds.

★ **EASY TO OPERATE**

Clamping device automatically aligns machine. Drill is always properly positioned and securely held in place. Machine is leveled by two quick-acting ground contacts and spirit level.

★ **POWERFUL, FAST**

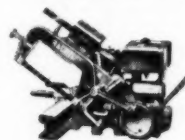
Powered by easy-starting $2\frac{3}{4}$ H.P. four-cycle gasoline engine. Drives

drill chuck at a 30 to 1 reduction providing more than adequate power.

★ **PRECISE, EFFICIENT**

Holes can be drilled cleanly and accurately through any rail web in less than two minutes. Quick acting drill holder provides easy drill changing. Drill holder is designed to utilize full length of drill shank.

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Portable rail cropping machine—gas engine driven. Saves time—reduces rail failures.



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Gas engine driven. Produces 1160 high velocity blows per minute. Weighs only 60 lbs.



HYDRA QUAD MULTIPLE TAMPER

Four tampers operated by one man. Hydraulically powered by 15 H.P. gas engine. Easy removal from track.



Write today for complete descriptive literature and prices on any of the above Racine Portable Rail Machines.

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RACINE, WISCONSIN

**New classification yard
for Southern**



CAT* WHEEL-TYPE TRACTORS MOVE 5 MILLION YARDS—FAST

At Atlanta, a new automatic retarder classification yard is taking shape for Southern Railway System. This is a large construction job, requiring the moving of approximately 5 million cubic yards of earth and rock. Caterpillar wheel-type Tractors are the backbone of the grading fleet doing the job.

Morrison-Knudsen Company, Inc., and Moss-Thornton Co., Inc., contractors for the job, have six DW21s, two DW20s, two D9s and a D8 at work. When the big job is finished this year, the new yard, which requires 85-foot cuts, will be $4\frac{1}{2}$ miles long, one-half mile wide.

The big yellow units are making the earth fly. Averaging a round trip every six minutes on a one-half-mile haul, they are carrying an average payload of 16 yards. Material is clay, rock and sand.

Now the production of these big units has been increased even more. The DW21 (Series C) with its 300 HP (maximum output) Turbocharged engine is perfectly matched with its new No. 470 LOWBOWL Scraper. The lower, wider bowl design loads more

earth faster with a capacity of 25 cu. yd. heaped, 18 cu. yd. struck. That means still better cycle time and bigger production. And you get the same efficient LOWBOWL design in the new No. 456 Scraper matched to the four-wheeled DW20.

Your Caterpillar Dealer has dependable equipment that can be used for practically all of your off-track work. He carries your parts inventory and gives you fast, efficient service around the clock. Have him demonstrate his high production equipment on your job. Call him today.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

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**NAME THE DATE...
YOUR DEALER
WILL DEMONSTRATE**

DRAMATICALLY REDUCE MAJOR M/W EXPENSE...*



**Railway Track and Structures, January 1956, page 27 — "The largest single item of expense in the track-laying and surfacing account is that for the renewal of track ties."*

NEW
GILCO
TIE
PADS

*made of Gilman Special
Formulation Plastic*

SAVE WITH LONG LIFE, REUSABLE GILCO TIE PADS

- ★ Lower initial cost
- ★ Less weight—though stronger—more units per package
- ★ Resists brine, diesel and lubricating oils . . . ideal for yard areas
- ★ Will not split on spiking
- ★ Withstands the impact of your heaviest equipment and traffic
- ★ Reuse . . . Inherent dimensional stability permits pad to be used again and again
- ★ Withstands wide temperature and humidity variations in year 'round operation . . . from tropics to the arctic.

The use of tie pads to extend the life of ties is well accepted . . . particularly in areas subject to impact shock and heavy traffic. Reports indicate pads can double tie life.

Laying new ties and replacing of old is a major maintenance of way expense. Act now to reduce such expense by specifying Gilco Tie Pads.

Gilco Tie Pads can be fabricated to any size and practical shape for use under railroad crossings, turnouts, curves, bridges, highway crossings, insulated joints and tangent tracks. Write for further information and sample.



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COMPANY**

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Manufacturer of Gilco Rigid Plastic Sheets & Gilco Tie Pads
Cellulite Insulation & Celluliner Cushioning Material

- ★ Easier handling . . . faster placement
- ★ Seals spike so no moisture enters tie at spike
- ★ Reduces mechanical wear on tie and helps maintain gage
- ★ Dimensionally stable . . . area padded remains protected

